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NetworkWorld

PORTAL PUNCH!

Portal players Plumtree, Hummingbird are readying wireless services for enterprise resource access.

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April 9, 2001 Volume 18, Number 15

The network portal: www.nwfusion.com

Doing the content shuffle

Some users shift control from hosters to CDNs.

BY JENNIFER MEARS

SUNNYVALE, CALIF. — Spikes in traffic don't worry McAfee.com CIO Doug Cavit.

The security software vendor expects a major new virus will cause a considerable jump in traffic, such as the 1.3 million hits seen one day in February after the Anna Kournikova bug. Typically, the site fields about 800,000 per day.

Cavit doesn't worry because McAfee is one of a number of companies that is moving more of its traffic out of data centers and onto net-

works provided by content-delivery firms. While the trend doesn't necessarily threaten the future of Web hosting companies such as Exodus and Digex,

with some large firms moving data out of hosting facilities and into networks run by companies such as Akamai and Adero, it blurs the lines between CDNs and hosters.

Take McAfee.com: During the past year or so, Cavit has pulled more than five dozen servers out of collocation facilities and now runs about 60% of his traffic on Akamai's See **Web hosting**, page 77



"[Using a CDN] really obsoletes the whole concept of using a traditional co-host."

Doug Cavit, CIO,
McAfee.com



New Cisco router may rewrite IP storage rules

BY DENI CONNOR

PALM DESERT, CALIF. — Cisco this week will formally enter the storage network market with technology that could help customers get more out of their Ethernet networks.

In a move that will shake up one of the few infrastructure markets Cisco has left unchallenged, the company will unveil one of the industry's first IP storage routers, a product for shuttling data between Ethernet LANs and Fibre Channel or SCSI storage systems. The router is expected to be part of an end-to-end storage network line from Cisco that will work with the company's Catalyst line of switches and routers.

Cisco, which declined to comment on its plans, will be one of many companies announcing new storage wares this week at the Storage Networking World conference in Palm Desert, Calif. Brocade and McData will also use the event

to roll out high-end storage-area network (SAN) switches, while Adaptec and Intel are expected to deliver IP storage offerings (see story, page 80).

But it is Cisco's storage gambit that will garner the most

attention.

"It's inevitable that Cisco is going to have a huge impact given that it is the dominant infrastructure player already," says Steve Duplessie, an analyst See **Storage**, page 80

No end seen for B2B troubles

BY KATHLEEN OHLSON

NEW YORK — That thud you heard last week was the business-to-business market tumbling into the basement.

While assessments differ on when — or if — this one-time Wall Street darling will climb back up the stairs, there was no question about the toll taken on key players. Among the bad news:

• Ariba and Agile Software canceled their proposed merger, each issued an earnings warning, and Agile said

one-third of its workers will be laid off.

• I2 Technologies said it will slash 10% of its workforce after See **B2B**, page 78

www.nwfusion.com

EVOLVING MARKETPLACE

Read how Gartner sees B2B e-commerce surviving and even thriving.



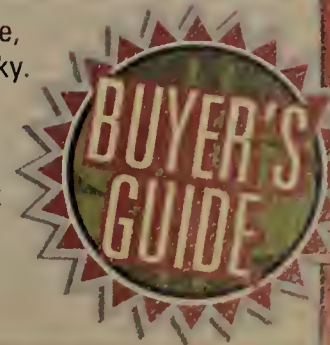
BUYER'S GUIDE: Desktop management

BULKING UP YOUR DESKTOP TOOLBOX

FEATURE: New point products are impressive, but integration with desktop suites remains tricky. Page 49.

REVIEW: Intel's LANDesk Management Suite 6.4 wins our test of seven desktop management suites. Page 50.

ONLINE: Buyer's Guide chart and interactive scorecard. **DocFinder:** 3729





“Linux is so totally dreamy!”

WHY *LINUX* HAS MORE FANATICAL DEVOTEES THAN A TEEN POP IDOL.

FIRST ELVIS PRESLEY. Now Linus Torvalds. One used his hips to create a worldwide frenzy. The other used the arguably less sexy but equally effective concept of open standards. When Torvalds created the new Linux operating system, he took the "what's mine is mine and what's yours is yours" world of proprietary software and turned it upside down. The result? A true software meritocracy where anyone can share, refine and customize code that's open and available for all.

What does this mean for business people? It means that new e-business infrastructures can be rapidly adapted to particular business tasks. Companies will no longer be forced to adjust their processes to the only software available. Since Linux® is now the fastest-growing and most accessible operating system, it's where the best technologies will be created and arrive first, and where the greatest number of skilled staff and technicians will appear now and in the future. Linux is hardware-agnostic, so it can quickly begin to remove the massively cost-intensive task of integration across disparate platforms. These aren't just software advantages; they are real bottom-line

business advantages: reduced costs, faster time-to-market, clear competitive edge, flexibility.

Now the Linux community has a powerful, perhaps even unexpected, ally in IBM. The people at IBM have embraced Linux as a pillar of e-business and are committed to helping it grow through new technology, devoted specialists and active support to the entire Linux community. From across-the-board Linux enablement of IBM servers and software, to thousands of dedicated Linux developers and technical support experts, to porting centers where IBM Business Partners can test and refine their applications for Linux, IBM is backing Linux wholeheartedly.

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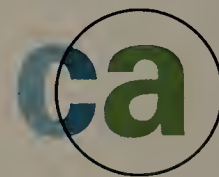
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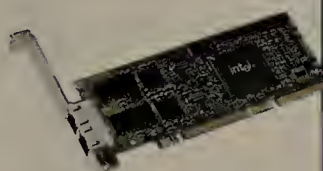
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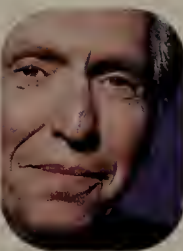
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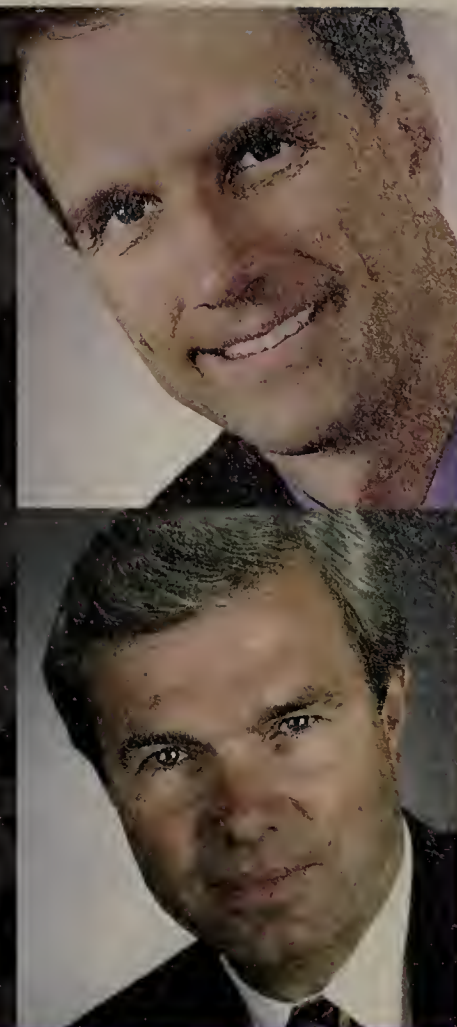
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Dennis Eaton, above, is strategic marketing manager for Intersil and a board member for the Wireless Ethernet Compatibility Alliance

Wayne Caswell is communications chairman for the HomeRF Working Group.



Review: No matter what kind of traffic is running on your network, Agilent Advisor 11.7 can measure it and diagnose network connectivity problems. **Page 57.**



Review: The devil is in the details, and Opalis Robot-3.6 can help you keep track of those mundane day-to-day maintenance tasks. **Page 59.**

Management

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THIS WEEK
ONLINE

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INTERACTIVE

New FAQ

We've compiled a list of the most frequently asked questions about Fusion. Stop here first if you're wondering about reprinting a Fusion article, how to submit a story idea, or even how to join a forum. **DocFinder: 3737**

Webcast

If you missed our latest Winners and Losers in 2001 Webcast on April 6, we can link you to the Networked World archives. Find out about the hot markets, the hot technologies and the companies that were touted to win in 2001. **DocFinder: 3738**

NEWS

E-government initiatives

Read about this scorecard-style evaluation covering the 22 most active countries online. **DocFinder: 3739**

Playing it safe

In a slow market, Cisco decides to drop its ONS 15900 Wavelength Router platform. **DocFinder: 3740**

FORUMS

Just junk mail?

See how other readers reacted to columnist Mark Gibbs' April 2 take on the ethics of spam — including the guy he wrote about. **DocFinder: 3741**

Fears about routing

One reader writes in reaction to the April 2 article on the faster 'Net growth rate, "If Cisco would stop jerking us around and charging \$1,000 for a 128M-byte stick for their routers, this wouldn't be a problem at all." What do you think? **DocFinder: 3742**

Net Know-It-All

Congratulations to Rich Hattan from Scottsdale, Ariz. He's March's Net Know-It-All winner. Who will be the winner in April? Play Net Know-It-All every week to increase your chances. **DocFinder: 3743**

Build your business

Join Network World at "The Changing Face of Information Security," a one-day event that shows you how to protect your valuable information assets and secure the future growth of your business. **DocFinder: 3744**

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CARUSO'S CACHE

The best of the NetFlash daily newsletter



Internet Explorer flaw lets hackers take over user's computer

How does Microsoft stay in business? I mean, it's getting hard just to keep up with all the bugs and security flaws in Windows and its programs that keep popping up every week. The company had to update every operating system it has made since 1995 to fix the problem with the false certificates issued by VeriSign, and now Microsoft is offering a patch to Internet Explorer. The Internet Explorer patch is necessary because, without it, hackers could take over your computer and pretty much have their way with it. That's probably not a good thing — although, don't forget, Microsoft is building remote-control capabilities into its upcoming Windows XP. Sounds like a feature that ought to save hackers a few steps. **DocFinders: 3751, 3752**

Swedish researcher claims mouse breakthrough

According to mouse man Johan Ullman, we're using the wrong muscles when we use a mouse. We use our upper-arm muscles, which are not ideal for precision work and are more adapted to — and I quote — "chopping wood and hitting people in the face." Sounds violent. No wonder I sometimes get the urge to hit someone when I'm pointing and clicking (or perhaps that Blue Screen of Death is a more direct cause). Anyway, Ullman says he has invented a pointing device that is ergonomically much better for you — so you can save those upper-arm muscles for the punching bag. **DocFinder: 3753**

Nextel, Sun, Motorola introduce phone that runs Java

Who needs a phone that runs Java programs? You do, of course. Personally, I'm not so sure I want a phone that is smart enough to run Java, but the games would probably be pretty good. However, the companies introducing the technology have more utilitarian applications in mind, such as a datebook and voice-activated dialing. **DocFinder: 3754**

— Jeff Caruso, managing editor, online news

Sign up for this e-mail newsletter online. **DocFinder: 3850**

COLUMNISTS

Compendium

On piercings and peer to peer

Fusion Executive Editor Adam Gaffin discovers a suuuper genius, what managers think of body art and how to do good with your screen saver. **DocFinder: 3745**



Keeping Current

Some good news for a change

Fusion columnist Fred McClimans writes about the phoenix-like rise from the ashes of Cabletron and Iridium. **DocFinder: 3746**



Help Desk

Security options

Ron Nutter helps a user figure out the best way to deal with NT emergency repair disks. **DocFinder: 3747**

NEWS BRIEFS, APRIL 9, 2001

Lotus makes 'Rnext' beta available

Lotus last week released the first public beta-test version of its next-generation Notes client, Domino server and Domino Designer, under the code-name Rnext. Notes client highlights include roaming user and multi-user features, security agents and enhancements to calendaring/scheduling and replication. The Domino server includes new monitoring tools, Web administration, policy-based management for users and servers, server access controls and deeper integration with IBM's WebSphere. Company officials say the beta cycle would likely extend beyond the end of this year, with final availability not announced. The beta-test version is available at <http://notes.net/rnext>.

Economy taking toll on H-1B visas

A soured economic climate has created a drastic change in the country's recruitment of foreign technology talent. As a result, this could mark the first year in recent times that the U.S. does not butt heads against its cap on

H-1B visa caps

Despite a dramatic rise allowed for this year, the ceiling on H-1B foreign worker visas may not be met.

Number of visas (in thousands)



H-1B foreign worker visas. During the past three years, the ceiling on H-1B visas has more than doubled as firms and industry groups pushed the government to use foreign workers as a way to solve the technology labor crisis in the U.S. Some industry observers think the U.S. will fall short of its quota this year, which sparked debate in the technology sector. "I doubt we will hit the 195,000 mark this year," says Harris Miller, president of the Information Technology Association of America (ITAA), a leading advocate of raising the limits. Miller says the reduction in H-1B visas proves the ITAA's argument that the increase in work permits was designed to solve a shortage in skilled technology talent, and not a way to recruit cheap workers from abroad.

HIPAA products on tap from Entrust

Entrust Technologies, which makes public-key infrastructure software and Web-access products, last week formed a new company called Entrust HealthCentric to design products and provide services that comply with

the federal government's e-commerce, privacy and security regulations as defined by the Health Insurance Portability and Accountability Act (HIPAA). The HIPAA regulations, issued in January by the Department of Health and Human Services (HHS) under the outgoing Clinton administration, were to have gone into effect at the end of February. But the new HHS Secretary Tommy Thompson suspended them pending a review. Much of the health-care industry has objected to the HIPAA regulations, and changes are anticipated before final rules are released this week.

BSDi sells OS to Wind River

Berkeley Software Design (BSDi) announced last week that it is selling the company's BSD operating systems to Wind River, an embedded Linux vendor. BSDi markets operating systems developed at the University of California at Berkeley. BSD/OS and FreeBSD are full-function, Portable Operating System Interface-compatible, Unix-like operating systems for Intel machines. Wind River will also support FreeBSD, a collaborative open source development effort.

Cisco exec appointed to tech post

President George W. Bush last week named Bruce Mehlman, telecommunications policy counsel in Cisco's Washington office, assistant secretary of commerce for technology policy. In that post, Mehlman, who has represented Cisco's views on regulatory issues before the Federal Communications Commission and other agencies, will play an influential role in setting the government's technology course.

Open source Apache gets makeover

The beta-test version of Apache Web server 2.0 was completed last week, marking the availability of what is seen as the first major reworking of the popular software. The upgrade is expected to make the software more accessible to users unfamiliar with it and to integrate better with other platforms. The beta-test version is available at www.apache.org. The update includes enhanced customization and usability features and will offer better speed, according to those who have worked on the beta-test version. Its adherents contend that Apache software sits on at least half of all Web servers.

Check Point begins load testing

Check Point announced it has begun working with vendors that make load-testing tools to ensure products can simulate peak-load capacity in the Check Point VPN-1 product and report the findings to the Check Point management console. The effort, called the OPSEC Load Testing Initiative, has gained interest from Antara.net, Envive, Exodus Performance Labs (formerly KeyLabs), FiveNine Solutions, Holistix, Mercury Interactive, Precise Software and Quest Software.

Groove delivers Ozzie's vision of peer to peer

BY JOHN FONTANA

Groove Networks, saying it has addressed enterprise concerns raised during the final development of its collaboration platform, will release the first version of the product this week after three years of secretive development.

Groove 1.0, the brainchild of Lotus Notes inventor Ray Ozzie, is enterprise collaboration software that heavily incorporates peer-to-peer networking. It uses e-mail or instant messaging to initiate "invitations" to other users to join a "shared space" that runs across local PC hard drives and lets users communicate and collaborate through voice, text messages, threaded discussions, drawing and word processing tools, and file sharing.

It is also a development platform that lets users build tools and applications for the Groove platform. The company this week also released the Groove Development Kit 1.0.

While pure peer-to-peer lets client PCs talk directly to one another without a centralized server, Groove has added a server element for IT management. The Groove Network Services provide management, software distribution, security policies and component host-



Ray Ozzie, Groove founder, starts answering IT concerns in the first release of product.

ing. Groove hosts these servers but is expected to have an enterprise version by year-end.

Peer-to-peer networking has been hailed as a revolutionary technology, although a number of peer-to-peer companies have fallen on hard times. Analysts say this is a shakeout as users evaluate the technology for enterprise and IT needs.

Research-based pharmaceutical company GlaxoSmithKline has committed to 10,000 Groove licenses as it cranks up early pilot testing. Bill Wood, head of collaborative computing research, says the management features are important.

"We have standard desktops and we don't let people just load anything. We want to control that," Wood says.

The server lets users dictate who gets the software and what add-on software they can download.

GlaxoSmithKline has 110,000 seats of Lotus Notes and is looking at building collaborative workspaces.

"We have lots of Notes databases, but there is still a lot of overhead in setting them up," Wood says. "Groove is very easy to get small groups started."

GlaxoSmithKline collaborates on research with biotechnology labs and universities, and wants a way for groups to quickly form, add new members and disband without a lot of IT involvement.

See **Groove**, page 77

Be a
Net Know-It-All

Answer this and nine additional questions online and you could win \$500! Visit **Network World Fusion** and enter 2349 in the Search box.

This week's question:

Which car company is part of a joint venture called Wingcast, designed to bring net services to automobiles?

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Corporate portal vendors ready for wireless

BY JENNIFER MEARS

SAN FRANCISCO — Portal software vendors Plumtree and Hummingbird later this year will announce wireless services that will let users have unlimited access to enterprise information portals and resources.

Plumtree will unveil its Internet Device Server, an add-on to its portal package, which will enable wireless access to portal e-mail, databases, the Web and other resources. As part of a phased rollout, Hummingbird will offer a subscription-based service that will send content to wireless devices.

Portals are becoming increasingly important as businesses strive to organize the vast amounts of information and capabilities available to employees, customers and partners over the Web.

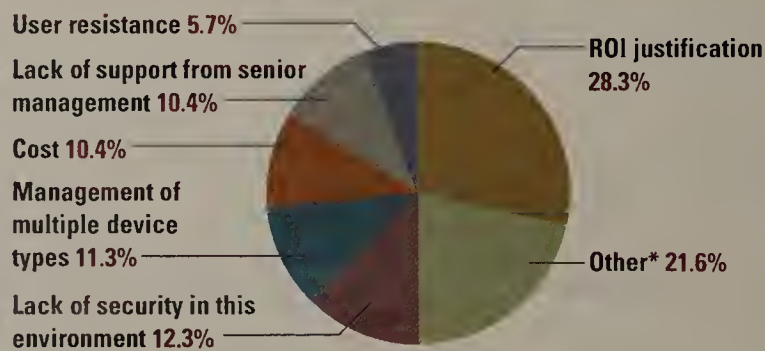
It's not surprising, then, that as the use of wireless devices increases, businesses will want to ensure their corporate portals are accessible from anywhere.

Plumtree and Hummingbird

No strings attached

Portal vendors are rolling out wireless accessibility, but is corporate America ready? A study by the Delphi Group found a number of reasons why companies may be balking.

Obstacles for wireless portals



*Includes:

- Poor U.S. cellular system and poor U.S. wireless Web.
- Lack of planning time and resources.
- Available IT man-hours and budget.

aim to use their technology to get a leg up on competitors such as Viador, iPlanet, Epicentric and Yahoo that have rolled out wireless access to their portals in recent months. Analysts say Plumtree, whose customers include Ford Motor Co. and Kmart, is one of the top portal vendors in terms of wired portal deployments. Hummingbird

also has a large customer base with clients such as New York law firm Dickstein Shapiro Morin & Oshinsky.

Larry Hawes, senior analyst at Delphi Group, says while overall wireless adoption may be slow, it's important for portal vendors to be offering some mobile capabilities. "The question is how ready are the busi-

nesses, the people who actually will be deploying wireless technologies," he says.

The Children's Hospital of Philadelphia is gearing up wireless portals. As wireless devices become more prevalent and technology advances to the point where more rich, content-heavy data can be transmitted, organizations will have to make sure they provide wireless access to their resources, says Evan Crawford, executive director of e-transformation/e-medicine and Web strategist.

"Being ready for wireless is extremely important," Crawford says. "If you're not thinking wireless when you're developing portals, then it's almost too late."

Creating portals for patients

Crawford is using portal vendor CoreChange to create portals for patients, physicians and clinicians at the hospital. Via the portals, patients or medical personnel will be able to check appointment schedules and medical histories, among other services. Craw-

ford says he's planning to slowly build out his wireless infrastructure and eventually have customized portals for patients and employees within different departments of the hospital.

The limitations of today's wireless technology — such as low bandwidth and spotty network coverage — have caused some trepidation among some users, experts say.

"But Plumtree has long recognized that alternative delivery methods for portal content are going to be important," says Phil Soffer, Plumtree's senior product manager. "We've been working on wireless for a quite a while."

He says what might be delaying adoption is that vendors are still struggling to find the best way to get portal content to wireless devices. Some use transcoding, simply transferring content that is accessed through a URL from HTML to wireless formats such as Wireless Application Protocol or Wireless Mark-up Language (WML). Others, such as iPlanet, a company formed by Sun and Netscape, use a wireless server to give users centralized access to information from mobile devices.

That's the route Plumtree is taking. The biggest difference between what Plumtree is planning and what others have done, Soffer says, is Plumtree is not trying to translate content. Instead, Plumtree is using so-called gadgets, and modifying them for the wireless world.

Plumtree delivers applications using these gadgets, modular software components that embed information and services from databases, e-mail, the Web and other sources into the portal view.

Plumtree's Portal Network Architecture distributes the gadgets to multiple servers that converse via HTTP over the Internet or corporate LAN. Soffer says its Internet Device Server will debut in the third quarter.

The Internet Device Server will serve up wireless-ready gadgets, says Sasha Aicken, the senior engineer on Plumtree's wireless project.

"We're trying to make sure that we create structure, gad-

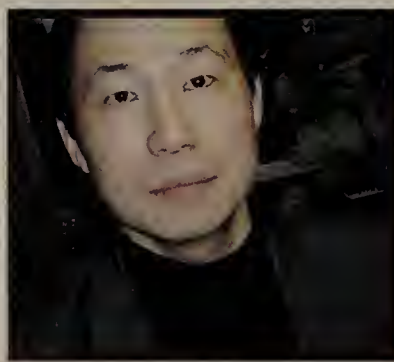
Despite economy, online supply chains thrive

BY ELLEN MESSMER

Manufacturers and retailers are continuing to roll out online supply chains, despite an economic downturn that may or may not have hit bottom.

To be sure, it all sounded bad last week. The leading supply-chain software vendor, i2 Technologies, said it would lay off about 600 workers, or about 10% of its workforce, as it missed its earnings mark. Ariba called off its acquisition of Agile and said it plans to lay off one-third of its workforce because of weak revenue.

Though Siebel Systems — one of the most important supply-chain vendors — saw revenue rise 121% last year, company CEO Thomas Siebel last week grimly predicted a global recession is under way that will wipe out business-to-business exchanges and software vendors.



"Motorola is a very decentralized company, but we decided to standardize on ERP and supply-chain applications to present a single face to our supplier."

John Liang, general manager of supply-chain services, Motorola

"When we emerge from this thing in 24 or 36 months, the world will be a saner place," Siebel said at a Forrester Research conference in Phoenix last week.

Saner or not, some analysts don't see a doomsday scenario for supply-chain software vendors, but only slower growth for a market that more than doubled in the last two years according to two research firms IDC and AMR Research.

"For i2 Technologies, it's a matter of having hired people

in anticipation of growth that wasn't as strong as expected. But this is not a company in big trouble," said Bob Kraus, vice president of quantitative research at consultancy AMR Research.

Many companies, however, are still bullish on Web-based supply-chain management for purchasing, planning and fulfillment.

Manufacturing giant Ingersoll-Rand last week cut a deal with SupplyWorks, the Bedford, Mass., provider of Web-

based supply-chain software, to host the SupplyWorks Max application online as part of Ingersoll-Rand's push to be a provider of outsourced supply-chain services to other companies. SupplyWorks competes directly with i2.

Under a new business unit called The 21st Supplier, Ingersoll-Rand will manage inventory and transportation logistics on behalf of companies and their suppliers, which would be expected to upload

See **Supply**, page 81

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Faltering ASPs rethink business plans

BY JENNIFER MEARS

Reality is setting in for some application service providers that are finding they have spread themselves too thin with ambitious business models that won't survive the pressures of the slowing economy.

While money was plentiful a little more than a year ago, the capital markets have dried up, making things tough, especially for ASPs whose business models rely on high upfront costs associated with assembling the hardware and software needed to deliver applications as a service.

The most recent bad news came last week when Interliant announced it was laying off 190 employees, or 14% of its workforce, and narrowing its ASP focus. The Purchase, N.Y., firm offers everything from professional services to high-end hosted applications. Interliant executives say they are trimming the excess and will offer services only where they see the greatest demand.

That means the company will focus on managed messaging

(including Lotus Domino and Microsoft Exchange), managed hosting, Web hosting, managed security services and professional services. The company will make no new investments in high-end applications such as enterprise resource planning, customer relationship management and e-commerce, and is considering selling business units that handle those services.

Interliant CEO Herb Hribar attributes the changes to the lagging economy and the fact that companies have been slow to use ASP services. That sentiment has been echoed by FutureLink CEO Howard Taylor, who announced during the company's earnings call March 30 that its earnings were lower than expected for the quarter and that its current cash position and liquidity would not carry it through the end of the year.



Interliant CEO Herb Hribar says the lagging economy and the slow adoption of ASP services is forcing ASPs to make changes.

As a result, Taylor said, FutureLink will step away from its ASP business and focus on professional services in North America, while evaluating the possibility of selling some unprofitable business lines or divisions.

Meanwhile, ASP Breakaway Solutions, which announced layoffs, office consolidations and other cost-cutting measures earlier this year, is getting a new CEO. Gordon Brooks will step down as chairman and CEO on April 6, but remain involved with the business as a consultant. William Loftus, Breakaway's chief delivery officer, will take over as president and CEO.

Earlier last month, Agillion, founded by technology industry veterans Steve Papermaster and Frank Moss, announced it was laying off all but 20 employees and putting itself up for sale.

Analysts still predict the industry will grow into a multi-billion dollar business in a few years. It's just that some ASPs are scaling back, meaning some customers may find their services transferred to another provider or even have their services terminated if an ASP closes a portion of its business. On the other hand, analysts say, ASPs that are scaling back are responding to demand and sharpening their focus.

"Reality is setting in," says Laurie McCabe, vice president and service director at Summit Strategies. "A lot of what's going on, it's almost inevitable. We have this whole new industry, ASP. We have this whole new Internet-centric world out there. It's all a big change. It's only natural that people are going to get into it, make mistakes, learn from their mistakes, and the industry will evolve. It's like any new industry."

Interliant: www.interliant.com; FutureLink: www.futurelink.net; Breakaway Solutions: www.breakawaysolutions.com; Agillion: www.agillion.com

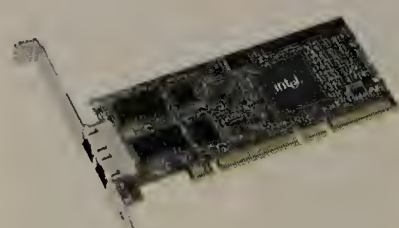
Intel puts data encryption in its server, laptop NICs

BY PHIL HOCHMUTH

SAN FRANCISCO — Intel this week will show off three new network interface cards that could help network professionals boost the security of LAN and WAN traffic without compromising the speed of their networks.

At the RSA Show, Intel will announce a server NIC and two laptop network adapters that could help companies secure the transmission of sensitive data over LANs and help reduce the risk of internal network sabotage and electronic theft.

The LAN adapters round out Intel's line of NICs with embedded security encryption processors. Intel announced single-port 10/100M bit/sec NICs with encryption processors for desktop PCs last September. The NICs are designed to work with the IP Security (IPSec) features



Intel's Pro/100 S dual-port server adapter can off-load data encryption from a server's CPU to improve transmission of encrypted data over a LAN.

that come with Windows 98, NT 4.0 and 2000.

The new Intel Pro/100 S dual-port Fast Ethernet adapter comes with an on-board IPSec encryption co-processor that Intel says can speed up the transmission of encrypted data over a LAN by off-loading the encryption process from a server's CPU to the NIC. The two laptop adapters — the Intel Pro/100 S Mobile Adapter and the Pro/100 S with an inte-

grated 56K bit/sec modem — also come with the encryption co-processor.

IPSec can be used to send 168-bit, Triple-DES traffic over a LAN or WAN, which can reduce the throughput of a server or PC by up to 90% because the encryption process can swamp the processors of the nodes sending and receiving encrypted data. With the data encryption off-loaded to the NIC, businesses can secure data without compromising network performance, says Tim Dunn, general manager of Intel's LAN access division.

ING Variable Annuities in Westchester, Pa., has its Web servers at a collocation facility in Philadelphia, but keeps its Sybase database servers at its Westchester data center. Mike Cranmer, assistant vice president for the firm, sees a potential for adding encryption

between the Web and database servers, which are linked by a T-1 line.

"[The WAN] would be the first place I would look to deploy server-to-server encryption," rather than using encryption on the company's internal servers, Cranmer says.

Cranmer, who uses a mix of Intel and 3Com NICs at ING Variable Annuities, says he would consider deploying NIC-based encryption.

The dual-port server NIC costs \$299, and the Type II and Type III laptop adapters are priced at \$164 and \$264, respectively. All three NICs are available now.

Intel: www.Intel.com

See related story on 3Com's NIC security features. Page 15.

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Cisco aims to simplify VPN management

Company consolidates three VPN clients into one, but new client won't support all three lines of VPN gear until next year.

BY TIM GREENE

SAN JOSE — Cisco has announced a single client for its three lines of VPN gear, a move that could ultimately simplify the management of Cisco virtual nets.

However, the new Cisco VPN Client 3.0 won't actually support all three lines of VPN gear until next year.

Currently, each type of Cisco VPN gear requires separate client technology, the result of the company building its VPN line in stages, partly through acquisitions. The new unified client will work initially with Cisco's 3000 Series VPN concentrators, and later, through software upgrades, with Cisco 7100/7200 VPN routers, Cisco 5000 Concentrators and Cisco PIX firewalls.

Despite the delay, the new client brings immediate benefits, says Emmett Hawkins, CTO of Vortex Networks, a WAN service provider in Atlanta that beta-tested the client. For instance, the client makes it eas-



The Cisco 3002 VPN appliance with eight-port Ethernet switch.

ier to screen remote users via Microsoft's Active Directory. Previously, a Remote Authentication Dial-In User Service server or Lightweight Directory Access Protocol directory needed to sit between a VPN concentrator and Active Directory, and that required maintaining more databases and sapped staff resources, he says.

The client also simplifies management by letting only central VPN equipment distrib-

ute security policies, preventing end users from tinkering with security settings.

Cisco has loaded its unified client on a new VPN appliance for branch offices called the Cisco 3002, which offloads VPN processing from remote PCs and lets multiple PCs use the same VPN link. One model of the 3002 comes with two Ethernet ports to connect with the WAN router and the LAN behind it, and one model includes an eight-port Ethernet LAN switch, reducing the number of devices needed in remote offices.

The 3002, priced at \$1,000 with two ports and \$1,200 with eight ports, will lower the cost of setting up site-to-site links between small offices and large corporate sites, says Elliot

■ **"Two-thirds of the cost of new connections is the ongoing maintenance and administration."**

Elliot Zeltzer, manager of telecom and net security, Gedas

Zeltzer, manager of telecommunications and network security for Volkswagen of America's Gedas IT subsidiary. The device is managed as if it were a software client.

"Before, small sites needed a baby image of a head-end concentrator, with all the management complexity of a big concentrator," he says. "Two-thirds of the cost of new connections is the ongoing maintenance and administration."

The price of such concentrators could fall in half in months to come as major vendors such as Nortel deliver similar products, says Jim Slaby, a Giga Information Group analyst. He expects such devices to include security features such as firewall, content filtering and virus scanning technologies.

Cisco is also introducing a VPN client for PDAs that will work with all its central-site VPN products. Certicom makes this client.

Cisco: www.cisco.com

Cisco adds QoS to Multi-protocol Label Switching

Seeks to make VPNs more like leased-line, ATM/frame relay service.

BY JIM DUFFY

SAN JOSE — Cisco last week unveiled software for service providers that could entice enterprises to more readily adopt IPVPNs.

The new features for Cisco's Internetwork Operating System (IOS) software are called Multi-protocol Label Switching Guaranteed Bandwidth services (MPLS GB). The features add quality of service (QoS) to MPLS, a standard for engineering traffic in a connectionless network such as the Internet or IPVPNs, and for establishing private user groups, or tunnels, in these networks.

By adding QoS awareness to MPLS, service providers can prioritize and guarantee a level of bandwidth for enterprise traffic in a point-to-point MPLS path, mimicking the capabilities of ATM, frame relay or leased-line services. Companies can now contract with their service providers for specific service-level agreements (SLA) and committed information rates in their VPN services.

"We offer an SLA of better

than 99% throughput, which is virtually guaranteed bandwidth," says Tom Wyrick, vice president of market development at GlobalOne, a user of Cisco's MPLS. GlobalOne offers an MPLS-based VPN service with three class-of-service levels for handling throughput, jitter and delay. GlobalOne has 50 customers for the service and is signing them up at a rate of five to 10 per month, Wyrick says.

Specifically, MPLS GB adds three features to Cisco's existing MPLS traffic engineering code: Differentiated Services (Diff-Serv)-aware Traffic Engineering (DS-TE), Cisco Auto-Bandwidth allocator and Fast Reroute (FRR).

DS-TE lets service providers offer applications with QoS guarantees based on the proposed IETF Diff-Serv standard for IP QoS. DS-TE also lets service providers perform con-

straint-based — policy-based — routing of traffic requiring improved delay or jitter characteristics, such as voice traffic. This feature is optimal for services such as virtual leased lines for voice toll-bypass applications, Cisco says.

"Virtual leased lines — that's hot!" says Paul Strauss, an analyst at IDC. "You still need a leased line for access, but after you get past that it's virtual

leased lines between offices, which is better than VPNs because they can guarantee bandwidth. This will allow service providers to sell VPNs with enough QoS so users will feel like they have a leased line."

AutoBandwidth, a proprietary Cisco feature, dynamically increases or decreases MPLS tunnel bandwidth based on measured traffic load. This makes more efficient use of available bandwidth by letting service providers configure and

monitor bandwidth for MPLS tunnels, Cisco says.

FRR enables recovery in case of link failures, preventing end-user applications from timing out and losing data. Cisco claims to replicate SONET 50 millisecond restoration time with this feature, for "thousands" of MPLS tunnels. This makes MPLS an alternative to SONET for applications such as voice trunking, Cisco says.

MPLS GB targets service providers that lease bandwidth and those that offer premium classes of bandwidth services. MPLS GB is available now in Cisco IOS release 12.0(14)ST. ■



Cisco's 7500 router supports the new QoS-enabled MPLS software.

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Correction

In the review, "Enterprise optical boxes see the light," (April 2, page 43), the laser wavelengths for the Nortel input cards were incorrect. They should have been 850 nm or 1,310 nm.



Quantifying the ROI Benefits of IP Network Management

An IDC White Paper





Quantifying the ROI Benefits of IP Network Management

Analysts: Elisabeth Rainge and Morris Edwards

As businesses become increasingly reliant on IP networks, they are placing enormous demands on the IP network infrastructures of their enterprises and those of service providers. Nowhere are the demands greater than with the network management software needed to keep the IP network performing at the highest levels with 24 x 7 reliability.

Traditional network management systems were designed to handle stable, and mainly homogeneous, network environments. The Internet has changed all that. Today's breed of network management systems must be able to handle rapid and explosive changes in network infrastructure with a diverse mix of devices, protocols, and communications links, and do so with the scalability and reliability expected of today's business services. Also, given the scarcity of qualified IT personnel, such systems must function with minimal involvement of network professionals.

One of the companies addressing these challenges is RiverSoft. Its Fault Manager product and Network Management Operating System combine a number of innovative features to discover, map, and monitor the largest and most complex and dynamic of networks with reduced human intervention so that root causes of network problems can be promptly isolated and fixed.

RiverSoft calls its system adaptive rather than automatic, because it initially requires some manual implementation. However, once up and running, the system adapts to subsequent changes in the network without requiring reprogramming or any other human involvement, making it useful for the dynamic nature of today's networks. The system also uses multicasting for communications among its processes, which means they can be distributed around the network for easy and massive scalability. In addition, multiple copies of the same processes can be running simultaneously, thus the architecture is highly reliable.

Because of these features, the company claims that its fault management product allows service providers and enterprises to execute operational change faster and more cheaply while increasing network availability and reducing the total cost of network ownership.

To validate these claims and determine the return on investment (ROI) of this "new-generation" network management tool, IDC interviewed a number of RiverSoft customers about the cost of deploying

and operating the RiverSoft Fault Manager (formerly known as Open-River) and the gains realized.

The interviews focused on three critical areas of savings:

- Management efficiency, which measures how many users each IT manager can support
- Management productivity, which assesses how effectively IT managers and their staff use their time
- Availability, which represents the time the network is fully operational

Achieving high-management efficiencies is particularly important for high-growth companies. Efficiency is determined by how well a management organization can realize economies of scale and scope with its people, practices, and tools. Efficiency is what enables an organization to grow at a faster rate than the staff required to support the IT infrastructure. It also allows the scope of the IT staff's management responsibilities to expand without the need to add staff.

In the companies surveyed by IDC, the number of users is growing by an average of 77% annually and the number of servers by 54%. Management efficiency savings from deploying the RiverSoft Fault Manager average a little less than \$1.3 million annually, which amounts to \$292 per user and \$3,497 per server (see Figure 1). This number reflects the high growth rate of the companies surveyed and the huge savings that can be generated by improving management efficiency.

IT productivity gains can likewise provide significant business benefits for fast-growing organizations. Besides reducing the cost of day-to-day operations, such gains improve the return on hardware and software resources and, more important, allow new initiatives to be implemented more rapidly.

In its survey, IDC measured IT productivity gains amounting to an average savings of close to \$453,000 from deploying the RiverSoft Fault Manager, including a 28% reduction in the time needed for network troubleshooting and repair.

Network availability has grown in importance in recent years as businesses have become increasingly network dependent, making downtime more costly. With the advent of ebusiness, network availability became even more critical because without the network no business is conducted.

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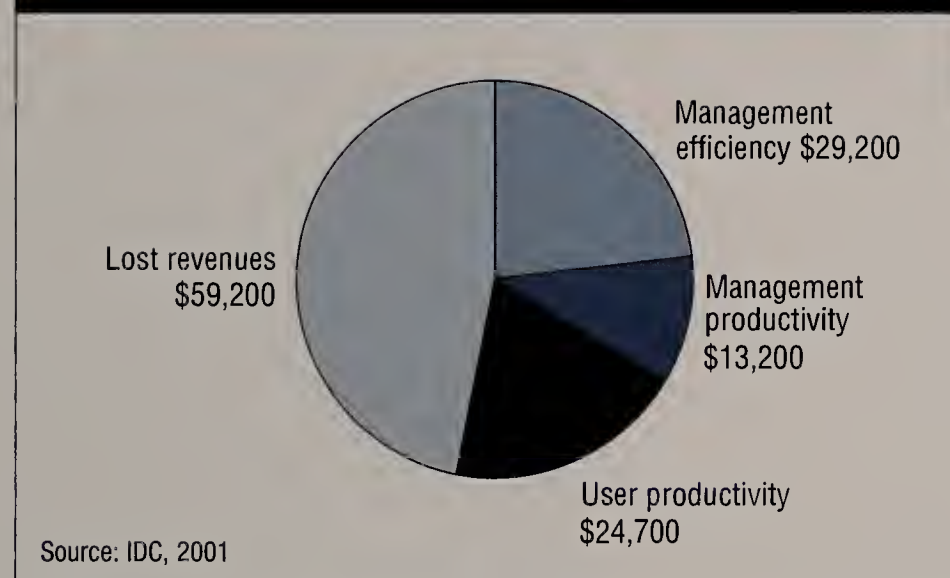
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Figure 1
Average Savings per 100 Users



In its survey, IDC determined both the business revenue lost from downtime and the losses from the impact of downtime on user productivity before and after deploying the RiverSoft Fault Manager. On average, the companies surveyed reduced the direct revenue lost from downtime by \$1.9 million annually. Increased employee productivity contributed further savings of close to \$865,000, giving total savings from increased network availability of \$2.8 million.

In evaluating the total ROI of deploying the RiverSoft Fault Manager, IDC used the payback and net present value (NPV) methodology. The NPV method calculates the value in today's dollars for the three-year ROI, including the annual average cost savings in management efficiency, management productivity, and availability. These totaled close to \$4.5 million annually. IDC then accounts for the opportunity costs realized by not having invested the initial amount in some other instrument, yielding a 12% return. This results in a net present value of \$10.5 million.

Payback is the time required, once implementation is complete, for the savings generated to equal the initial investment. Based on an average investment of \$308,708 over the three years, the payback with the RiverSoft Fault Manager for the companies surveyed ranged to a high of 52.4 days and an average of 10.7 days, yielding an average ROI of 3,413%.

ROI Methodology

Network management systems have traditionally provided enterprises with solid ROIs from increased management efficiencies, reduced downtime, and higher user and IT staff productivity. This is especially true for static, homogeneous networks. For larger networks with a more volatile mix of network devices and protocols, the value proposition is less favorable because of implementation and operational com-

plexities. These complexities push up deployment and network administration costs and often result in greater downtime because of the difficulty of isolating network faults.

How the RiverSoft Fault Manager Works

The RiverSoft Fault Manager combines active object modeling with advanced discovery, polling, and root-cause analysis to speed the resolution of network problems.

In discovery mode, the system interrogates the network for information about how it is physically and logically configured. It uses this information to build the object database, creating an accurate map of the network elements and the connections between them.

Once the discovery and the identification of the network elements are complete, the system begins polling the network to monitor performance and to determine network changes. It does this by performing periodic rediscoveries and comparing the results. Changes may also be detected by ad hoc discovery, such as when a device sends a message that it has been reconfigured. The system automatically rediscovers that portion of the network.

Any changes are mapped onto the object database, ensuring that the virtual network model is accurate for the process of analyzing the origins and causes of network problems. On detecting a fault, the system consults the object database to isolate the root cause of the problem and the affected network and system elements. The system then presents the network administrator with a single root-cause event and a topology map showing the affected connectivity.

Once a fault is detected, the devices downstream from the outage will not be polled, reducing network management overhead. When the problem is fixed, the impacted elements are analyzed automatically to determine their current state.

To provide scalability and fault tolerance, the system employs multicasting for communicating among the management components. These components can be configured and run as separate processes in different orders to allow flexibility in configuration and deployment. The processes may also be distributed around the network to make scaling easier. In addition, multiple copies of each process may be run simultaneously for software-level, fault-tolerant operation.

Imagine a different breed of network management system that installs quickly and automatically discovers all the devices in the network and constructs a very accurate model of the network topography.

Imagine, further, a system that keeps the model current by tracking changes in the network without human involvement and uses the model's accuracy to promptly determine the exact root cause of network problems.

This is the model followed by RiverSoft with its fault management product. It is a model that should provide high ROIs, even with large, complex, and dynamic networks. Also, because the system employs a scalable and extensible architecture, it is a model suited to ebusiness and service provider environments, where managing rapid growth is a major issue.

To validate this network management model, IDC set out to measure and quantify the business benefits of the RiverSoft Fault Manager using a ROI methodology based on the total costs of deployment and the sum of the savings achieved.

The methodology measures the organization's ROI in four stages by:

- Determining the cost of deploying and administering the organization's networks, systems, and applications
- Measuring the gains in productivity, availability, and efficiency from deploying RiverSoft Fault Manager
- Ascertaining the investment made in the purchase and setup of RiverSoft Fault Manager and the associated training costs
- Calculating the payback period or ROI for the tool, once it is fully implemented

Specific figures for savings and costs come from surveying network managers at companies that have deployed the RiverSoft Fault Manager. For the survey, IDC interviewed network managers at service providers, financial institutions, and other enterprises and asked a series of questions about specific administrative processes and the associated time and staffing requirements before and after deploying the tool.

All the companies surveyed have extensive and heterogeneous networks that are growing rapidly (see Table 1). On average, the IT managers have responsibility for more than 1,750 desktops and 180 servers. The number of servers is growing by an average of 54% annually and the number of desktops by more than 77%. The average IT team at these companies has the equivalent of 60 full-time employees, paid an average loaded salary of \$89,600. The companies have invested an average of \$308,708 over three years in the RiverSoft Fault Manager, including \$41,667 for installation and training and \$82,875 for maintenance.

Table 1
Profile of Surveyed Companies

All the companies surveyed have extensive and heterogeneous networks that are growing rapidly.

	Average
Current number of desktops managed by IT	1,757
Projected annual growth of desktops	77%
Current number of servers managed by IT	180
Projected annual growth of servers	54%
Number of IT management FTEs*	60

Note: Projections are for the next three years.

* Full-time equivalents (employees)

Source: IDC, 2001

Survey Results

IDC's ROI model bases its results on the savings realized in three critical areas: management efficiency, management productivity, and network availability.

Management Efficiency

Managing growth is a major challenge of ebusiness and service providers. To be successful, organizations must be able to grow at a faster rate than the IT staff required to support the all-important network infrastructure. When IT departments are unable to achieve the requisite economies of scale and scope, the IT management limitations restrain corporate managers' business decisions and discourage aggressive deployment of technology as a competitive advantage.

For the companies surveyed, an average increase of 138% in management efficiency meant that IT headcount growth could be reduced by 39 people over the three years. This yields a cost savings of more than \$1.2 million based on a three-year average loaded annual salary of \$94,155. The management efficiency savings amount to \$3,497 per server and \$292 per user.

Management Productivity

Although the cost savings created by enhanced management productivity are clear and significant, there are additional competitive gains that are less evident but equally, if not more, important. They include higher returns on hardware and software investments and speedier implementation of new initiatives. By decreasing the time required to execute deployment, operational, and administrative tasks, IT managers can devote more time to proactive endeavors that generate future savings in reduced downtime, extended equipment, and network life as well as permit faster execution of new applications.

Over the past decade, networks have become larger, more complex, and heterogeneous — and more important to the bottom-line — challenging the IT teams to be more productive. In 1992, IDC coined the term “disintegration” to describe the trend of computer manufacturers turning away from integrated manufacturing in favor of using components from outside vendors. That trend has since encompassed software and applications, with the result that networks are much more difficult to manage. Now organizations are outsourcing their networks and applications to service providers. These developments, and the requirements for ebusiness of 24 x 7 operation with minimum downtime, have put even greater pressure on IT departments to isolate and fix network problems as quickly as possible, despite the network complexity.

In the companies surveyed, the RiverSoft Fault Manager reduced the time spent on network troubleshooting and repair by an average of 28%. Annual savings from improved management productivity amounted to an average of \$452,843.

Availability

In the networked economy, the availability of networked resources has become the yardstick by which corporate managers judge IT performance. With each new business initiative, network availability becomes more and more critical and the cost of downtime escalates.

The cost of downtime is not easy to measure, but it clearly has the twin components of lost business revenue and losses from the impaired productivity of users unable to access network resources. The impact of downtime on user productivity depends on how the user utilizes or interacts with the network. Some may not be affected, while others may be unable to complete their work.

In a recent survey of 850 North American businesses, IDC found that 59% lost business revenue or could not conduct business during periods of unscheduled downtime. With ebusiness applications, service providers, and financial institutions, where the network is the business lifeline, losses from downtime can be truly significant, not to mention the damage to customer relations.

For the companies surveyed, the number of downtime incidents dropped by an average of 65% following the deployment of the RiverSoft Fault Manager, resulting in an average 41% reduction in downtime minutes. Annual savings in business revenue from the reduced downtime averaged just more than \$1.9 million. Savings from increased user productivity added another \$864,754, for a total annual savings of more than \$2.8 million.

Investments

To get an accurate measure of the investment in deploying the RiverSoft Fault Manager, the survey asked for the setup, upgrade, and replacement costs for the product, in addition to the purchase price. Training and maintenance costs were also included in the total investment figure.

Table 2
ROI Analysis

Payback with the RiverSoft Fault Manager averaged 10.7 days.	
	Average
Annual savings from increased management, efficiency, productivity, and network availability	\$4.52 million
Investment over a three-year period	\$308,708
Net present value (NPV)	\$10.5 million
Payback period (once implementation is complete)	10.7 days
ROI	3,413%
Source: IDC, 2001	

IDC made its ROI calculations based on a number of assumptions:

- Time values were multiplied by burdened salary (salary + 50% for benefits and overhead) to quantify efficiency and manager productivity savings.
- Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.
- The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.
- Lost productivity is a product of downtime multiplied by burdened salary.
- Lost revenue is a product of downtime multiplied by the average revenue generated per hour.
- Because not every hour of downtime equates to a lost hour of productivity or revenue generation, IDC attributes only 50% of the result to savings.

IDC used the payback and NPV methodology to determine the total ROI of deploying the RiverSoft Fault Manager (see Table 2). The NPV method calculates the value in today's dollars for the three-year ROI, including the annual average cost savings in management efficiency, management productivity, and availability. These totaled close to \$4.5 million annually. IDC then accounts for the opportunity costs realized by not having invested the initial amount in some other instrument, yielding a 12% return. This results in a net present value of \$10.5 million.

Payback is the time required, once implementation is complete, for the savings generated to equal the initial investment. Based on an average investment of \$308,708 over the three years, the payback with the RiverSoft Fault Manager for the companies surveyed ranged to a high of 52.4 days and an average of 10.7 days, yielding an average ROI of 3,413%.

Case Study: Carrier1 International

High-quality customer service and, hence, network availability is a critical feature of the tier 1 carrier transport and network services that Carrier1 International provides to its customers. That's why Matt Bird, Carrier1's IP operations manager, has such high praise for the RiverSoft Fault Manager, which the service provider uses to manage its IP network infrastructure.

"The RiverSoft Fault Manager allows us to identify the root cause of network faults instantly, reducing time to diagnose faults dramatically so we can maintain high network availability," Bird explains. "It also allows us to proactively notify our customers about network faults, often before a customer is aware of the problem. We can then assure them that we know the exact cause of the problem and can usually give an estimated time to fix it. Customers really appreciate that level of service."

Carrier1's customers include more than 140 ISPs and multinationals in Europe that rebrand and market the network services and solutions to their respective end users, numbering in the millions. One of Carrier1's main strengths is that it owns a pan-European intercity fiber network, connecting 12 countries and spanning more than 11,000 route-kilometers to link 33 POPs in 20 European cities. It is also constructing six city ring fiber networks and plans to build at least 14 more. The entire network is designed, planned, and managed from a network operations center in London.

For its Internet services, Carrier1 has chosen the high-end Cisco 12,000 routers, but it has other equipment from Foundry, 3Com, and Nortel Networks. The Carrier1 network includes 15 Nortel DMS voice switches for

high-quality voice services and Nortel SDH multiplexers for providing control and efficient use of the fiber network and dedicated managed bandwidth services.

With the RiverSoft Fault Manager, Carrier1 has been able to automate much of its IP network management operations, freeing Matt Bird and his team of 16 technical specialists from having to perform time-consuming administrative tasks. In particular, it has eliminated much of the time and cost for fault identification and has improved the speed and precision of identifying the root cause of network problems.

"Previously, when network problems occurred, the screen would fill with alarms from not only the faulty unit but the devices attached to it as well," Bird notes. "It could often take some time to figure out the root cause of the problem." Now, only the cause of the fault is highlighted on the screen, so repair and restoral work can begin immediately.

Also, because the root cause is identified so precisely, Bird and his team have been able to write scripts for automatic problem diagnosis and repair, triggered by specific alarm conditions. "It takes time to write the scripts," Bird says, "but I estimate we save two hours or more a week in admin time from the tool alone."

Bird's team runs a comparison of the IP network topology every night, so the tool's discovery feature also saves considerable admin time, given the dynamic nature of the IP network infrastructure. "It's a challenge to cope with the pace of change," Bird says, "but the RiverSoft product scales well. In fact, both the product and the company have grown with us, and the support we receive is still first-class."

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Briefs

Covalent Technologies has launched versions of its Secure Sockets Layer and Fast Start installation software for Windows Web servers. Covalent SSL and Fast Start, previously available only on the Apache Web server platform, are now available for Windows NT and 2000 servers. Covalent SSL provides 128-bit encryption for the Apache Web server. The Covalent Fast Start server uses a graphical installation program to easily install features such as SSL, PHP, Perl, Apache JServ and Jakarta Tomcat. Both products are available for trial download from the company's Web site. Covalent SSL costs \$500; Covalent Fast Start Server is \$1,000.

Covalent: www.covalent.net

For a limited time, AS/400 server users can trade in an installed AS/400e Model 600, S10 or 170 and receive up to a \$2,000 credit toward a new IBM iSeries 400 Model 270 replacement machine, IBM said last week. To qualify for the credit, customers must make the purchase no later than June 29, 2001.

IBM: www.ibm.com

American Megatrends will enter the network-attached storage market this week with the introduction of two appliances, the StorTrends 1108-N and 1312-N. The NAS appliances are 1.75 and 3.5 inches high and have up to 12 hot-swappable drive bays, redundant power supplies and an Intel StrongARM processor. American Megatrends also offers the MegaRAID Cluster Kit 1600, which includes two RAID controllers and the cables and hardware necessary for clustering two StorTrends 1312-C appliances. The firm declined to provide pricing.

American Megatrends: www.ami.com

Start-up looks to speed data delivery

BY DENI CONNOR

A new server design may prove key to delivering data more quickly to Internet customers.

Systems and storage start-up Ikadega of Northbrook, Ill., is introducing a server appliance for enterprise networks and service providers that uses a switched-fabric architecture to feed multiple requests to a server's disk for processing, increasing the amount of work the server can handle.

Ikadega's server is built to be installed at the edge of networks or outside corporate firewalls, and used to store large static files such as video, movies or software so users can get at them more quickly. It will work in concert with InfiniBand and other Web or application servers.

"The bottleneck is getting data out of the server," says Vernon Turner of market research firm IDC. "By having a channel architecture [such as Ikadega's], you over-

PROFILE: IKADEGA

Location:	Northbrook, Ill.
Founded:	January 2000 by Robert Phillips, CTO, and Darryl Moskowitz, executive vice president.
Product:	DirectPath appliance server; ships late this year.
Financing:	\$15 million
Investors:	Kettle Partners, BlueStar Ventures, LEO Capital, OCA Venture
Fun fact:	The company is named after a magical dream world that Moskowitz's son imagined.

come the latency concerns of bus-based architectures and are able to get large static files faster to the user."

The market for high-power servers and appliances is growing rapidly, Turner says. IDC estimates the market for high-performance servers will be more than \$60 billion in 2001, and the appliance server market alone will be around \$14 billion by 2004.

Ikadega's appliance incorporates the

company's DirectPath architecture. DirectPath is similar to the InfiniBand design from Intel in that it uses multiple I/O channels to get data more quickly to users.

DirectPath differs from InfiniBand, though, in the scope of its design and its purpose. InfiniBand is a general-purpose server meant to ease bottlenecks that even the latest PCI-X-based servers have by creating a switched-fabric backplane that can

See **Ikadega**, page 16

3Com improves NIC security features

Company's card adds encryption support; prevents packet sniffing, IP address spoofing.

BY PHIL HOCHMUTH

SANTA CLARA — 3Com this week will announce a new firmware add-on for its network interface cards that could be used to lock down servers and PCs to prevent hacks from outside or inside a company.

The network firm says the new NICs let network professionals secure networked PCs and servers by controlling exactly what can be done from a client PC or who can access certain servers. 3Com says the NICs can boost the speed of nodes that send encrypted data by off-loading encryption algorithms and other packet processing tasks from a PC's processor to the NIC.

A firewall enhancement will also be available on 3Com's 3CR990 10/100M



3Com's 3CR990 Fast Ethernet network interface card acts as a PC-level firewall.

bit/sec NIC with the on-board 3X reduced instruction set chip processor. The firewall technology will reside on the NICs as firmware. 3Com developed it with security software firm Secure Computing.

On the client side, the NICs can be configured to prevent end users from sniffing packets or spoofing an IP address. The NICs can also prevent end users from sending fragmented packets — a technique used in some distributed denial-of-service attacks. The NICs can be configured to limit which network servers a PC can access.

IP address. Server NICs can be told not to send pings or fragmented packets, which can help stem distributed denial-of-service attacks if a server is taken over by hackers.

In order to set and distribute security policies across an organization, 3Com's Embedded Firewall Policy Server is required. The Windows NT/2000-based software lets users make standard security templates and distribute the settings to NICs across the network. The server is also required for retrofitting existing 3CR990

See **3Com**, page 16

www.nwfusion.com

FIRED UP OVER FIREWALLS

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Appliance automates e-business data exchange

BY JOHN COX

One of the ongoing nightmares for enterprise IT managers is the laborious work needed to exchange data between applications. But one electronics manufacturer has been using a specialized server that dramatically simplifies this work for e-business.

Eldec has cut electronic order processing from a couple of days to less than an hour by using the Syncx Integration Appliance from CommerceRoute. The device reads a data source, converts the format into XML and lets a user map the XML format into one of many target data formats. The box combines CommerceRoute software (based on data integration work by several of the company's co-founders while at Lawrence Berkeley Laboratory), one or more Intel processors, and a couple of IP network interfaces. The box, designed for the data center, can be clustered, and the processing load shared among them.

The appliance readily handled the tough translation work between an electronic data interchange (EDI) protocol used by Eldec's main customers, and Eldec's Oracle-based manufacturing and

financial applications.

"One of the reasons we're excited about the CommerceRoute appliance, is we could see beyond the [immediate issue] of inputting orders and outputting invoices," says Michael Oleson, director of IT for Eldec, a Lynnwood, Wash., unit of Crane. "It's a means to integrate [any] two different data systems. We'll be able to say to customers who don't have electronic data interchange, 'Give us whatever [data format] you can and we'll handle it.'"

Syncx includes a discovery program that uses HTTPS to connect to and then "read" the data source, such as an Oracle database. This program deciphers the Oracle data model and separates out the various elements of the model. Then a Syncx "transform" program translates the Oracle data to an XML dialect. The XML data can be fed directly into an XML processor or converted into yet another data format.

There is no database tuning, no operating system with which to tinker. "This is a locked-down box," says Ted Colton, a vice president with CommerceRoute, a privately held start-up that began selling the device last December. The box can process XML and HTML documents, flat

files, X12 and other EDI protocols, and a range of popular relational databases.

But it has limitations, Colton says. Syncx doesn't yet work with legacy data formats such as CICS or mainframe data formats such as IMS. Nor is it a workflow engine — it can't juggle the back-and-forth sequence of steps that form complex business processes.

But the device has done all that Eldec wanted it to do, Oleson says. Airlines electronically submit about 200 to 300 orders per month for Eldec's electronic sensing equipment or for spare parts, using the Spec2000 protocol developed by the airline industry. But in the past, once orders arrived, the order entry staff had to print out the data from them

and manually rekey it. The process was time-consuming, complex and prone to errors, and it took about two days to get a final order into the Oracle database. Trying to translate Spec2000 for use by the Oracle database used by Eldec's Oracle Financial and Manufacturing applications was unexpectedly complicated, Oleson says.

In mid-January, Eldec brought in a Syncx appliance (see graphic). CommerceRoute engineers developed a software preprocessor to convert the Spec2000 protocol into XML. Using the Syncx graphical interface, Oleson's team then put the XML data into Oracle database tables.

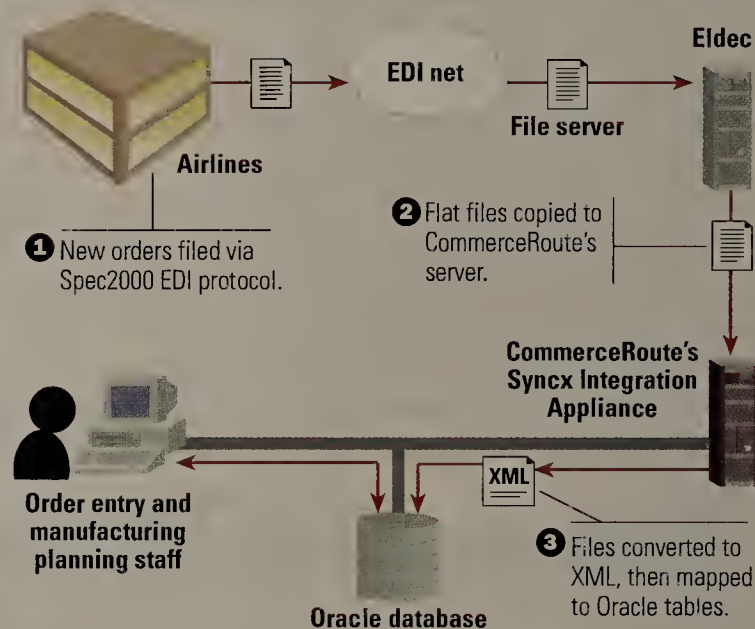
Now Spec2000 orders are funneled into the Oracle database, while other Spec2000 data, such as quote requests and order changes, are automatically formatted into e-mail and routed to the appropriate people. Before using Syncx, this data was printed out and manually distributed.

The Syncx price starts at \$25,000. "Our alternative was going to be a lot of custom development, at contract [pay] rates," Oleson says.

CommerceRoute: www.commercerooute.com

Data appliance cuts ordering time

Using the CommerceRoute appliance, Eldec created a more-automated order processing system and cut order time for its electrical sensors from about two days to less than an hour.



3Com,
continued from page 15

NICs with the firewall software and for upgrading the NICs as new versions are released.

As companies open their corporate firewalls to share resources with online business partners and extranet customers, securing resources inside the firewall becomes critical, according to John Harrison, product line manager for 3Com. Additionally, businesses must deal with the threat of network resource abuse by internal employees.

"There's a lot of contractors, temporary employees or even malicious insiders who can wreak havoc on a corporate network," Harrison says.

In a 2000 survey of 643 U.S. organizations conducted by the Computer Security Institute (CSI) in San Francisco and

the FBI, more than 70% of the companies said they had at least one incident of unauthorized network use by someone inside their networks. The CSI/FBI survey found that external hacking occurred in only 30% of the companies and that the average monetary damage done by external hackers cost companies an average of \$25,000, as opposed to the average cost of \$1.8 million for internal system attacks.

The cost of a single desktop NIC firewall upgrade is \$50. The Embedded Firewall Policy Server costs \$1,000, and a single-client license for the server costs \$200. The firewall upgrade and server software will be available in the third quarter. The 3CR990 PC and server NICs are available now, and cost \$120 and \$130 each.

3Com: www.3com.com

Ikadega,
continued from page 15

handle numerous concurrent I/O links.

"[The appliance] gives you more capacity and allows you to deliver it more quickly," says Michele Abrams, a director at Exodus Communications in Seattle. "It also offers an inordinate amount of storage built-in. The two major components of streaming audio and video are bandwidth and storage, so in essence Ikadega is solving an important problem by allocating more of those resources via their appliance."

In traditional bus-based server architectures, user requests for data are made by passing information over buses. An I/O device requires content and requests the data from the CPU, which knows the physical location of the data. The CPU contacts the disk

controller, which supplies the data to the memory of the computer. The CPU then tells the I/O device where the data can be located in memory. The I/O device requests the data from memory, completing the data transfer.

Ikadega's DirectPath is not unlike designs from start-ups Cereva or BlueArc that use parallel processing to multiplex data requests to storage.

Ikadega's fabric-based approach is implemented in field-programmable gate arrays at present, but will move to ASIC technology in the future.

In a network using Ikadega's appliance, a user requests information of the Web server, which supplies data from either a back-end database, its own cache of dynamic content or the Ikadega appliance, which stores large files that are downloaded by users. Instead of passing information over

the bus and into memory like in a general-purpose server, Ikadega passes it by one of multiple routes in a switched fabric to a controller that knows the location of the data on the disk drive. Once the disk drive retrieves the data, it returns the data directly to the Web server that requested it, bypassing the switched fabric and the disk controller.

The smallest DirectPath appliance will have 1 terabyte of storage capacity; use inexpensive, hot-swappable Integrated Drive Electronics (IDE) drives; and be packaged in a 14-inch-high rack-mount configuration. Its storage capacity can be increased to more than 80,000 disks of 75G bytes capacity each.

Ikadega will ship its DirectPath appliance in October. Pricing has not been determined.

Ikadega: www.ikadega.com

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Wired Windows . Dave Kearns

INTELLECTUAL PROPERTY: NAPSTER AND ETHICS

I've left much of the discussion of Napster, Gnutella and other so-called "peer-to-peer" technologies to my learned friend and colleague Mark

Gibbs. But an exchange with publisher and open source guru Tim O'Reilly (as well as a number of high-tech writers who should know the value of intellec-

tual property) over the Napster phenomenon has led me to believe that most people no longer feel the need for ethical standards.

In traditional ethical studies, the classic problem is the starving man — can a starving man ethically steal a loaf of bread if he has no money? The modern version is, evidently, can the person who wants to listen to music steal it if he thinks the price is too high? Or, as O'Reilly put it: "Where the music industry has really gone wrong is that they've lost their legitimacy with consumers. ... They are training people to steal by giving them no legitimate alternative."

No legitimate alternative? The alternative you have to what you feel is over-priced merchandise is the same as it always was — don't buy it. If enough people don't buy it, then one of three things happens: a) the vendor goes out of business (that's the one many dot-coms didn't learn); b) competitors spring up to lower prices (that's how Amazon got started, as well as Internet Explorer); or c) the vendor lowers the price (IBM PCs followed this model).

Diamonds are artificially high-priced because they're controlled by an international cartel. Nevertheless, my wife really likes jewelry and I like to do things for her that she likes. Does that mean I can, ethically, steal diamonds? I don't think O'Reilly, my fellow writers or most of the Napster community would feel that way. Some out of fear of punishment, sure, but most because they really believe it's wrong to steal diamonds.

The problem is that music, words, ideas — all intellectual property — are seen as, somehow, not being as worthy of protection as real "things," such as diamonds. Even the people who produce the intellectual property have a hard time understanding the ethics involved, because — deep down — they're thrilled that someone else likes their work so much as to steal it. Nevertheless, it's ethically, morally and (for the most part) legally wrong.

If you want to comment on this, please use the mailbox ethics@vquill.com rather than the one listed below.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@vquill.com.

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Tip of The Week



This column was germinated by an interview (<http://openp2p.com/pub/a/p2p/2001/01/30/lessig.html>) of legal scholar Lawrence Lessig by Tim O'Reilly and Richard Koman. The interview makes fascinating reading if you have an interest in intellectual property and copyright law.

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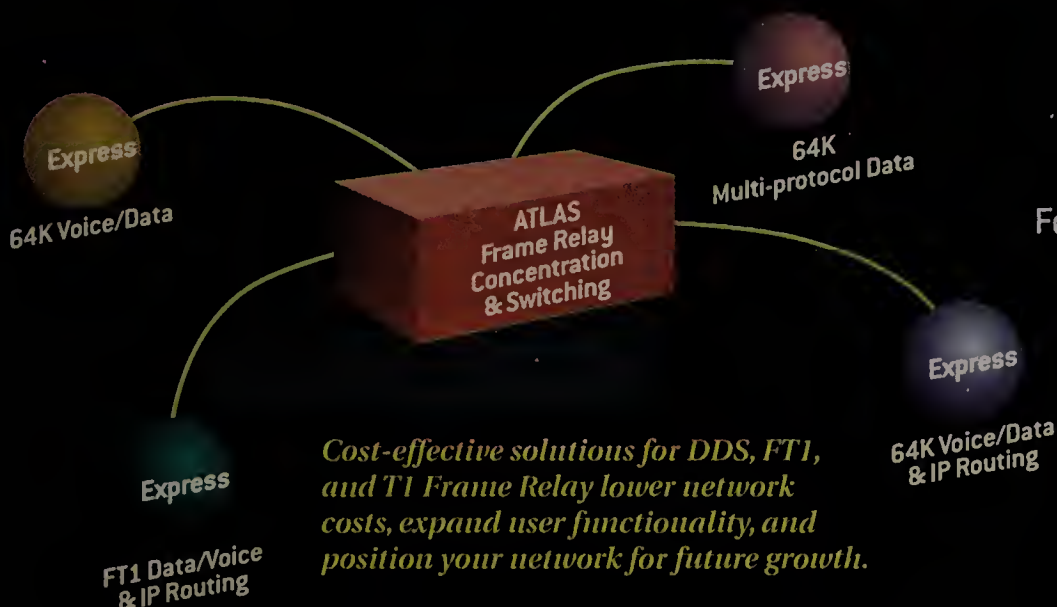
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High-speed wireless LANs are coming

BY JOHN COX

About a year from now, the first high-speed wireless LAN products will hit the market, promising to deliver a data rate of up to 54M bit/sec. That speed should give enterprise net managers plenty of time to assess their net requirements, scope out product plans and address with vendors a range of critical issues such as technical support and software stability.

Net executives face a range of problems — and opportunities — with the faster radio technology. These include installing many more wireless access points than today's wireless LANs need, higher power consumption for laptop interface cards, security, and remote administration and network management.

Enterprise users installing today's IEEE 802.11b wireless LANs, in the 2.4-GHz band at 11M bit/sec, rattle off a litany of nagging problems that could carry over into the faster wireless products. Technical support staff are often hard to reach. Because of small differences in the way vendors implement the standards, interface cards from one vendor might not work with the access point from another. Software drivers are flaky or have to be laboriously updated.

That's what one user discovered when evaluating wireless LANs.

"I'd gone in [to our wireless LAN evaluation] thinking that this was an enterprise-ready technology," says Chris Maers, a network administrator with CoManage, a Wexford, Pa., vendor of service management software carriers and ISPs. "But we'd make a call to the support line, and you'd have to call three or four times, or you'd get forwarded to three or four different departments to find the right guy."

Maers wouldn't be specific but he says the products he evaluated were from the major manufacturers in the wireless arena.

Like CoManage, other companies are turning to wireless LANs, even though wireless throughput still lags far behind faster Ethernet-switched LANs. "There are three reasons to deploy wireless," says Craig Mathias, a principal with technology advisory firm FarPoint Group. "You can't install wire, for whatever reason. Wireless is cheaper over a given time. Or you need mobility."

In some cases, bandwidth-hungry applications such as video might be the main attraction for high-speed wireless, but most analysts seem to think that if an enterprise customers choose wireless, they want the fastest wireless LAN possible. "Speed is what is really driving this market," says Gemma Paulo, wireless industry analyst with Cahners In-Stat. "People just want fast speed overall."

Many LAN equipment vendors are scrambling to satisfy that need.

WIRELESS COMPUTING
Untethered LANs have issues but show great promise, experts say.

Faster wireless LANs

The market for products based on the 11M bit/sec IEEE 802.11b standard is spurring growth in the wireless LAN field. Here's what you can expect:

802.11g: Extends 802.11b to 22M bit/sec. Intended to be compatible with 11M bit/sec nets. First products expected next year.

802.11a: Uses the more powerful 5-GHz band, with more channels and higher aggregate bandwidth than 802.11b nets. Data rates range from 6M to 54M bit/sec. But, at higher rates, the radio range is shorter than 802.11b. First products expected late 2001 or early 2002.

HiperLAN/2: A European standard that also uses the 5-GHz band, and will reach similar speeds as 802.11a. Uses a completely different broadband modulation technique called orthogonal frequency division multiplexing. Work is being done to make it interoperable with 802.11a. There are no products available in the U.S. Ericsson created a HiperLAN/2 net based on prototype products last December.

There are about 15 wireless LAN vendors, including 3Com, Agere (part of Lucent), Cisco, Enterasys (a Cabletron company) and Nokia. Most of them have declared or hinted they'll introduce high-speed wireless LANs based on the 802.11a standard in 2001. These products will work in the 5-GHz band, use a modulation technique called orthogonal frequency division multiplexing and run at several data rates, up to 54M bit/sec. The first 802.11a products could ship in early 2002, with more expected before mid-2002.

There is some interest in yet another IEEE standard, 802.11g, which extends the 2.4 GHz, 802.11b technology to 22M bit/sec. Some products at this speed may appear during the latter half of 2002.

Finally, there is an entirely different standard, HiperLAN/2, which has been drafted by the European Telecommunications Standards Institute. Like 802.11a, it promises up to 54M bit/sec data rates in the 5-GHz band. Some consider HiperLAN/2 to be technically superior to the IEEE standard. But right now, it's mainly a European standard, with products yet to appear.

The LAN vendors are moving aggressively. Cisco went so far as to buy one of the key 802.11a chip makers, Radiata. "We've made a very substantial commitment to future wireless technology," says Ron Seide, product line manager with Cisco's wireless networking group. "We anticipate being the vendor with the first product to market in the 5-GHz space."

3Com, among others, plans to release products

during the first half of 2002, assuming that the 5-GHz chipsets arrive on schedule, says John Drewry, a senior director with 3Com's wireless connectivity division. Drewry looks to the chip makers to achieve technical breakthroughs that will pack more functions on fewer chips, thereby making the chipsets smaller, less expensive and more power-efficient.

In fact, the higher power needs may make the 5-GHz products completely unsuitable for laptop users. Today's batteries may not supply enough juice to run a 5-GHz radio for long.

Unit prices for the faster LANs will be higher than the current 2.4-GHz LANs, but should start to drop fairly quickly, Mathias says. Today's 802.11b interface cards are about \$150 and should hit \$75 by year-end. Their 802.11a equivalents will start at about \$200 next year, Mathias predicts, and then drop rapidly to about \$150. Today's access points are about \$900, dropping to about \$600 in the future. The 802.11a access points will initially sell for about \$1,000, dropping quickly to \$650 to \$750 in the subsequent 12 months, he predicts.

This more-costly radio technology will create a new set of issues for enterprise net executives.

For one thing, you'll have to configure your net differently, and with many more access points. That's because the range of a 5.4-GHz radio is less than that of a 2.4-GHz radio. A rough rule used by vendors as a starting point is that a current 802.11b access point has a range of about 250 to 300 feet in a typical open office layout. In the same setting, and at the maximum 54M bit/sec data rate, an 11a access point will have a range of about 90 feet. The shorter wavelength of 5.4 GHz means that transmissions in this band have more trouble traveling through walls, floors, furniture and other obstructions, says Cisco's Ron Seide.


Early tests at 3Com have established a rough rule of thumb. "If you roll out a cell-based deployment of 5-GHz access points, you'll need four times as many to cover the same space [as a 2.4-GHz LAN]," Drewry says.

That brings up another issue: The total cost of ownership over time for 5-GHz nets also will be higher, even considering that hardware prices decrease over time, says Jason Smolek, a wireless analyst with market research firm IDC.

The wireless LAN vendors can take steps to cut cost of ownership even more, he says. "Vendors have to bring this down by educating their [distribution] channel and creating effective [customer] service organizations," Smolek says. Channel investment and service quality will become criteria for net managers to evaluate. ■



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Net.Worker

Products, services and strategies for tying teleworkers to the enterprise

Briefs

Research in Motion has released BlackBerry 2.1, the software upgrade for its handheld e-mail device. The new wireless calendaring feature does not require synching the device to the computer. Also new is the ability to cut and paste text. Corporate upgrades cost \$450 for 20 devices; \$29 for single users.

Research in Motion: www.blackberry.net

PCSupport.com has announced the launch of MyHelpDesk, a suite of outsourced help desk services that combine 24-7 assisted support services with self-help resources via a Web-based application. The cost is \$6 per user per month, plus a one-time setup fee. PCSupport.com: www.myhelpdesk.com

Sygate Technology recently released the new version of its desktop firewall Personal Firewall 4.0, which adds application monitoring and intrusion-detection capabilities. Targeted at home and small offices, the product employs a trusted approach that lets only preapproved application traffic pass. Also new are forensic capabilities that allow route tracing and enhanced logging features. It is free for single users, \$40 for business users.

Sygate: www.sygate.com

CUseME Networks released CUseME Videoware, a client/server video system that interoperates with corporate videoconferencing systems using H.323 Web clients, Microsoft TAPI clients, ISDN and analog phone connections, and integrates with Microsoft Exchange. Features include Web touring, streaming media integration, video instant messaging and Web templates for IT customization.

CUseME: www.cuseeme.com

Prudential takes total (remote) control

Skittish about security, the insurance firm turns to Exario's private network services.

BY TONI KISTNER

Talk about a distributed workforce. More than half of Prudential Insurance Company's 60,000 worldwide workers access corporate network applications and services remotely — from branch offices, storefronts, private

offices, customer sites, as well as from home. Until last year, workers dialed in over analog or ISDN lines using AT&T remote dial services. But mounting pressure from company brass eager to cut costs, as well as from employees frustrated with slow connections, meant Ed Mann had to find a better way.

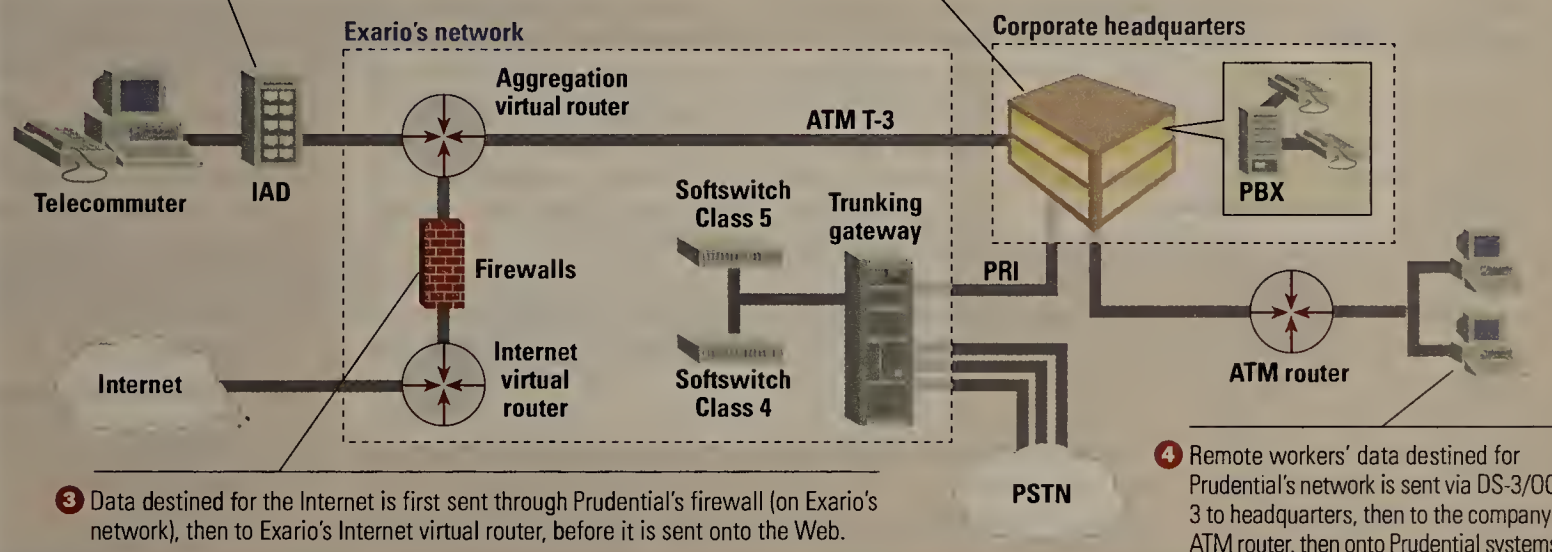
Mann, Prudential's vice president of network technology, had to solve a two-pronged problem. First, he targeted the network side and looked to replace the company's costly outsourced remote dial service with an in-house VPN. Built with Nortel Networks' extranet VPN switches, See **Prudential**, page 26

How Prudential uses Exario's private network services

Because it can handle data and voice traffic over the same network, Prudential plans to migrate all its remote workers' IP data services first, then add voice services for use by its full-time teleworkers over time.

1 Remote workers' data is prioritized with voice traffic at the integrated access device (IAD) at the remote premises. Then the data is sent to Prudential's virtual router, which is on Exario's network.

2 Data is prioritized, secured, filtered, firewalled and channelized, based on Prudential's requirements.



3 Data destined for the Internet is first sent through Prudential's firewall (on Exario's network), then to Exario's Internet virtual router, before it is sent onto the Web.

4 Remote workers' data destined for Prudential's network is sent via DS-3/OC-3 to headquarters, then to the company's ATM router, then onto Prudential systems.

NorthPoint fiasco sours small businesses to DSL

BY MICHAEL MARTIN

Web development firm Digital Positions relies on its Internet connection to keep its business running. Until two weeks ago, the Atlanta firm had been using a symmetrical DSL supplied by Verio as its Internet lifeline. Unfortunately for Digital Positions, the wholesaler supplying DSL was NorthPoint Communications, which announced two weeks ago that it was shutting down its network after failing to find a company interested in acquiring its customers.

Digital Positions wasn't caught totally off-guard. The company had a back-up T-1 line in place, letting its IT staff switch over the IP addresses from DSL to the T-1 with-

in a day. But the experience has frustrated Judith Campbell, Digital Positions' CTO.

"If these companies want to have any validity, they can't treat us like they have over the last couple of weeks," Campbell says.

Campbell isn't alone in feeling that NorthPoint and AT&T, the company that bought NorthPoint's assets, mishandled the shutting down of NorthPoint's network. NorthPoint had more than 100,000 customers — mostly small and midsize businesses, many of which took their complaints to Web forums.

DSLreports.com, a site dedicated to DSL news and DSL user experiences, set up a discussion board on the NorthPoint closure, which received thousands of posts in

a matter of days. Many merely reported whether their NorthPoint connections were still up, others complained of the lack of alternative providers, while some debated whether switching to NorthPoint competitors Covad Communications and Rhythms NetConnections was a smart move, fearing they might soon share NorthPoint's fate.

Some disgruntled NorthPoint customers set up an online petition to AT&T, protesting their treatment. While AT&T bought most of NorthPoint's assets, including DSL access multiplexers, software and collocation space, the carrier had no interest in NorthPoint's customers. At last count the petition had

See **NorthPoint**, page 26



Telework Beat . Toni Kistner

THE PERILS OF MIXING BUSINESS WITH PLEASURE

Recently, *The New York Times* ran a story called "Laid off and locked out of your PC," detailing the perils of storing personal data on your company machine. When you work full time in an office, it's relatively easy to keep your personal files off the company system. But for full-time teleworkers, the temptation is much greater to combine corporate and personal data onto one machine.

Part of the beauty of telework is it lets you better manage your time and balance your work and personal lives. It's natural to assume that teleworkers regularly shift from work activities to personal activities in the course of the day.

But where do you keep your resumé? Your personal e-mail account? Your professional contacts? The information you consider your professional intellectual property should you leave

your current employer? Like it or not, if you're using a corporate-issued system full time from home, your employer theoretically can lay claim to everything on that system, including any personal data, or at least prevent you from getting to it should your employment be terminated.

This not necessarily an invasion of privacy, says Nicole Belson Goluboff, attorney and author of *Telecommuting For Lawyers* and the forthcoming book, *The Law of Telecommuting*.

"The area is still new, but generally, courts have not favored invasion of privacy claims by employees," she warns.

Because telework law is in its infancy, creating a telework policy at the outset is imperative. If you don't, legally, the company falls back on generic consent forms you signed when coming on board. If your company is lackadaisical about creating a

policy, don't follow its lead, write one yourself and get it approved. Be sure to clarify these sticky issues:

- Can you store personal data and/or applications on the work system?
- If you're laid off or fired, how will your access to company data and applications be severed?
- Will you be given a window of time to retrieve your personal data? How long?
- Can you connect your corporate system to a family network to share a company-provided broadband connection?
- If you provide the DSL connection, should the company reimburse you for costs if you only use it for business?

If you're using your own equipment to telework, you have a right to store personal data, but because the employer likely owns the applica-

tions, the boss can monitor and maintain them as long as your consent is obtained. But the employer doesn't have the right to cut your access, adds Seattle human resources attorney Bob Blackstone. Moreover, if you load corporate software on a personal system, you may be violating software-licensing agreements.

How do you encourage employees to maintain a separation? Goluboff suggests that companies offer to give full-time teleworkers the legacy desktop PCs that sometimes are freed up in a telework program launch. And of course, to protect your data whether it's personal or professional, keep a local backup, or back up to a Web-based hard disk service like Xdrive.

Kistner is the managing editor of the Net Worker section. She can be reached at tkistner@nww.com.

Prudential,
continued from page 25

Mann and his team created a redundant environment between Prudential's New York and Roseland, N.J., data centers with total failover. Security is the tightest, using Triple-DES for encryption and RSA's secure ID for authentication.

"We'll have one of the largest enterprise VPNs when we're finished," Mann says.

So far, the company has migrated about 15,000 users to the system. Mann anticipates a 50% to 75% cost savings with the VPN. "This year, we've already seen savings in the millions of dollars," he says.

Although pleased with the savings, Mann knew the VPN solved only half of Prudential's problem. Faced with ever-increasing availability of residential broadband services, employees were pushing hard to access company systems over their own high-speed connections — a prospect fraught with management and security problems.

Mann envisioned thousands of workers securing DSL and cable contracts from a slew of providers, and sought to maintain control over the roll out. He also needed to control how workers were using their connections. "Once the worker is beyond the physical confines of the campus, it's very difficult to

set policy and police what people do," Mann says.

As important, Prudential also wanted workers to experience the same work environment in-house as they do remotely and maintain or even increase their productivity. Faced with the challenge of migrating 30,000-plus workers to high-speed residential connections, Mann considered business-class DSL offerings from eight ISPs. But because he demanded service-level agreements for all the remote connections, most competitors were knocked out.

Even tougher to please, Mann also wanted a private network and voice capabilities. The only company to make the cut was Exario Networks, a New Jersey managed IP services provider. Exario provides high-speed line provisioning, VPN and voice to enterprise companies over its unique private carrier-class network. Because the company data never crosses the Internet, firms like Prudential, as well as financial institutions such as American International Group, Soros Fund Management and Credit Suisse First Boston (formerly DIJ) are signing up.

So far, Exario has rolled out 25 Prudential employees in a pilot program, and another 1,000 are signed up for service. By outsourcing its remote access needs to Exario, Mann says Prudential is laying the groundwork

to offer the telecommuting option to new employees who don't want to relocate to its corporate offices. DSL services are paid by Prudential, but it's up to the business managers to determine which employees are eligible. Prudential's policies for accessing company resources are strict, and employees are not permitted to use the DSL connection for personal use. Because all traffic is routed through Exario's network to Prudential's servers, Mann can monitor Internet and e-mail traffic on remote machines the same way he does on campus.

For Mann, DSL provisioning is a headache that's no longer his. Exario handles all the employee provisioning and systems management. Its unique Web-based customer service and network management tools let pre-approved Prudential employees enter their customer information on Exario's site. Exario is also building Prudential an employee intranet site where remote workers can access company policies and procedures, and specific information related to their departments.

However, Prudential's also got an eye on Exario's voice services. Mann says Prudential will likely provide an integrated voice and data solution for its full-time teleworkers, so they can dial four-digit extensions just like in the office, and program

their phones to take advantage of many calling features.

As Exario has relieved Prudential's deployment headache, some concerns still linger about the DSL industry in general.

"We had two NorthPoint customers in our pilot program who're now out of luck," Mann says.

Exario isn't tied to DSL,

NorthPoint,
continued from page 25

more than 1,200 signatures.

Plenty of providers, including other DSL players and wireless broadband companies, are scrambling to win former NorthPoint customers. ISPs are rushing to switch their NorthPoint accounts to other networks as quickly as possible. Other ISPs — including former NorthPoint partners Excite@Home and Microsoft — have announced they're leaving the DSL business.

No matter where NorthPoint customers land, the company's demise has raised doubts in the small business community about the viability of DSL.

Digital Positions' Campbell says she's wary of going with Covad or Rhythms. That leaves BellSouth, which has not yet returned her calls.

Ultimately, Campbell says she may just go with a T-1 as

though. For line provisioning, the company tries DSL first, but if an end user doesn't qualify, Exario can roll out ISDN, frame relay and point-to-point T-1 connections, with wireless and satellite coming soon. Exario doesn't offer cable connections because it says cable doesn't provide the "viability or reliability" for its type of customers. ■

her primary connection, saying, "It costs more, but at least you know it will be there."

Matthew Davis, an analyst with The Yankee Group, says some users will be afraid of getting burned by DSL again.

"The NorthPoint closure really hurts DSL," he says.

"A lot of small businesses are really going to be reluctant to go back, especially after they waited months for installation in the first place," he adds. ■

www.nwffusion.com

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Sign Here _____
Signature (required) Date

TO QUALIFY: You must supply your company name and address. If military, please specify branch/base. If government, please specify division.

Name _____		Title _____	
Company _____			
Division/Mail Stop/Military Branch or Base _____			
Street Address _____			
City _____		State _____	Zip _____
Business phone (____) _____		FAX (____) _____	
Internet E-mail address _____			
We would like to send you periodic information via e-mail on 3rd party networking products/services. <input type="checkbox"/> Check here if you DO NOT wish to receive this information.			

If there is a parent company, please provide name: _____

☐ My home address is also my business address.

Optional delivery address: Enter your home address below if your company will not accept delivery at your business address:

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B401

1. What is the principal business activity at your location? (check ONE only)

01. <input type="checkbox"/> Manufacturing (other)	10. <input type="checkbox"/> Education	18. <input type="checkbox"/> Other (please specify) _____
02. <input type="checkbox"/> Finance/Banking	11. <input type="checkbox"/> Government/Military	
03. <input type="checkbox"/> Insurance/Real Estate/Legal	12. <input type="checkbox"/> Consulting (Independent) *	
04. <input type="checkbox"/> Health Care Services	13. <input type="checkbox"/> Communications Carriers	
05. <input type="checkbox"/> Hospitality/Entertainment/Recreation	14. <input type="checkbox"/> ISP	*Attn Consultants, Integrators, Distributors, Resellers: Please complete form based on ALL clients and your own business needs
06. <input type="checkbox"/> Media/TV/Cable/Radio/Print	15. <input type="checkbox"/> ASP	
07. <input type="checkbox"/> Retail/Wholesale Trade/Business Services	16. <input type="checkbox"/> Manufacturing (Computer/Communications/OEM)	
08. <input type="checkbox"/> Transportation	17. <input type="checkbox"/> Resellers/VARS/VADs/Integrators/Distributors* (Computers/Communications)*	
09. <input type="checkbox"/> Utilities/Process Industries/Mining, Construction, Petroleum, Refining, Agriculture, Forestry		

2. P: What is your primary job function? (check ONE only)
S: What is your secondary job function? (check ALL that apply)

P	S	P	S	P	S
<input type="checkbox"/> 1. <input type="checkbox"/> Network Management	<input type="checkbox"/> 5. <input type="checkbox"/> Internet/Intranet/E-Commerce Management	<input type="checkbox"/> 8. <input type="checkbox"/> Consultant (Independent)		<input type="checkbox"/> 9. <input type="checkbox"/> Other (please specify) _____	
<input type="checkbox"/> 2. <input type="checkbox"/> LAN Management	<input type="checkbox"/> 6. <input type="checkbox"/> Engineering Management				
<input type="checkbox"/> 3. <input type="checkbox"/> Datacom/Telecom Management	<input type="checkbox"/> 7. <input type="checkbox"/> Corporate Management (CEO, COO, CFO, Pres., VP, Dir., Mgr.)				
<input type="checkbox"/> 4. <input type="checkbox"/> CIO/CTO/SAT/MIS/Systems Management					

3. What is the estimated value of Network equipment and services that you specify, recommend, or approve the purchase of? (Please **print** the appropriate **number code** on the line next to each product category. Please complete ALL categories A-O.)

1. \$100 Million or more	A _____ Large Systems (Mainframes/Minis)	H _____ Internetworking (including Routers, Switches)
2. \$50 Million to \$99.9 Million		
3. \$25 Million to \$49.9 Million	B _____ Desktops	I _____ Internet/Web/E-commerce
4. \$10 Million to \$24.9 Million		
5. \$1 Million to \$9.9 Million	C _____ Mobile (including PDAs, Wireless)	J _____ Intranet/Extranet
6. \$100,000 to \$99,999		
7. \$50,000 to \$99,999	D _____ Servers	K _____ Remote Access
8. Under \$50,000	E _____ LANs	L _____ Peripherals
9. None of the above	F _____ WAN Equipment	M _____ Software
	G _____ Carrier Services	N _____ Service/Support Services
		O _____ Storage

4. What is the total number of sites for which you have purchase influence? (check ONE only)

1. ☐ 100+ 2. ☐ 50 to 99 3. ☐ 20 to 49 4. ☐ 10 to 19 5. ☐ 2 to 9 6. ☐ 1 7. ☐ None

5. What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (check ONE box in each column)

SERVERS		CLIENTS		LANs	
At Location	Entire Org.	At Location	Entire Org.	At Location	Entire Org.
A	B	C	D	E	F
<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>
<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>
<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>
<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>
<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>
<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>
<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>
<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>

6. What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check ONE only) CORPORATE: 1. <input type="checkbox"/> Entire Enterprise/Multiple Enterprises 2. <input type="checkbox"/> Division/Multiple Divisions 3. <input type="checkbox"/> Department 4. <input type="checkbox"/> None	B. Involvement (check ALL that apply) 1. <input type="checkbox"/> Create Network/IT Strategy 2. <input type="checkbox"/> Recommend/Specify Brand 3. <input type="checkbox"/> Approve Purchase 4. <input type="checkbox"/> Evaluate Products/Services 5. <input type="checkbox"/> Determine the Need 6. <input type="checkbox"/> None
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7. What is the estimated number of employees at your location/in entire organization? (check ONE in each section)

A. At your location: 1. <input type="checkbox"/> Over 20,000 2. <input type="checkbox"/> 10,000 - 19,999 3. <input type="checkbox"/> 5,000 - 9,999 4. <input type="checkbox"/> 2,500 - 4,999 5. <input type="checkbox"/> 1,000 - 2,499	B. Entire organization: 1. <input type="checkbox"/> Over 20,000 2. <input type="checkbox"/> 10,000 - 19,999 3. <input type="checkbox"/> 5,000 - 9,999 4. <input type="checkbox"/> 2,500 - 4,999	5. <input type="checkbox"/> 1,000 - 2,499 6. <input type="checkbox"/> 500 - 999 7. <input type="checkbox"/> 499 or less
--	--	---

8. Please indicate the Internet/Intranet/WAN/LAN/Remote products/services that you are currently involved in purchasing or plan to purchase (check ALL that apply)

A. Currently involved in purchasing		B. Plan to purchase	
INTERNET/INTRANET			
A	B	A	B
<input type="checkbox"/> 01. <input type="checkbox"/> VPN Equipment	<input type="checkbox"/> 07. <input type="checkbox"/> Web Hosting	<input type="checkbox"/> 13. <input type="checkbox"/> Web Based Collaboration/Groupware	
<input type="checkbox"/> 02. <input type="checkbox"/> VPN Services	<input type="checkbox"/> 08. <input type="checkbox"/> Content Hosting	<input type="checkbox"/> 14. <input type="checkbox"/> Web Acceleration/Caching/Load Balancing Products	
<input type="checkbox"/> 03. <input type="checkbox"/> Firewalls/Security/Encryption	<input type="checkbox"/> 09. <input type="checkbox"/> Traffic Management	<input type="checkbox"/> 15. <input type="checkbox"/> Other Internet/Intranet	
<input type="checkbox"/> 04. <input type="checkbox"/> Electronic Commerce Tools	<input type="checkbox"/> 10. <input type="checkbox"/> Web Development Tools		
<input type="checkbox"/> 05. <input type="checkbox"/> Web Servers/Software	<input type="checkbox"/> 11. <input type="checkbox"/> Management/Monitoring Software		
<input type="checkbox"/> 06. <input type="checkbox"/> Internet Services	<input type="checkbox"/> 12. <input type="checkbox"/> Web Based Management Tools		
LANs/INTERNETWORKING			
A	B	A	B
<input type="checkbox"/> 16. <input type="checkbox"/> Local-Area Networks	<input type="checkbox"/> 26. <input type="checkbox"/> Layer 4-7 Switches	<input type="checkbox"/> 34. <input type="checkbox"/> Hubs/Intelligent Hubs/Stackable Hubs	
<input type="checkbox"/> 17. <input type="checkbox"/> Network Operating System Software (NOS)	<input type="checkbox"/> 27. <input type="checkbox"/> ATM Switches	<input type="checkbox"/> 35. <input type="checkbox"/> Cables, Connectors, Baluns	
<input type="checkbox"/> 18. <input type="checkbox"/> Intel Based Servers	<input type="checkbox"/> 28. <input type="checkbox"/> Token-Ring Switches	<input type="checkbox"/> 36. <input type="checkbox"/> Management Frameworks	
<input type="checkbox"/> 19. <input type="checkbox"/> Intel Based Multiprocessor Servers	<input type="checkbox"/> 29. <input type="checkbox"/> Network Storage (NAS, SANs)	<input type="checkbox"/> 37. <input type="checkbox"/> Call Center Tools	
<input type="checkbox"/> 20. <input type="checkbox"/> RISC Based Servers	<input type="checkbox"/> 30. <input type="checkbox"/> Storage/Backup (Optical, Disk, Tape, RAID)	<input type="checkbox"/> 38. <input type="checkbox"/> Voice over LAN	
<input type="checkbox"/> 21. <input type="checkbox"/> Clustered Servers	<input type="checkbox"/> 31. <input type="checkbox"/> Network Test/Diagnostic Tools	<input type="checkbox"/> 39. <input type="checkbox"/> Other Local-Area Network/Internetworking	
<input type="checkbox"/> 22. <input type="checkbox"/> Print Servers	<input type="checkbox"/> 32. <input type="checkbox"/> UPS		
<input type="checkbox"/> 23. <input type="checkbox"/> Routers	<input type="checkbox"/> 33. <input type="checkbox"/> Network Interface Cards (NICs, PCMCIA)		
<input type="checkbox"/> 24. <input type="checkbox"/> Layer 2 Switches			
<input type="checkbox"/> 25. <input type="checkbox"/> Layer 3 Switches			
REMOTE/WIRELESS			
A	B	A	B
<input type="checkbox"/> 40. <input type="checkbox"/> PDAs	<input type="checkbox"/> 42. <input type="checkbox"/> Remote Access Services	<input type="checkbox"/> 44. <input type="checkbox"/> Other Remote/Wireless	
<input type="checkbox"/> 41. <input type="checkbox"/> Remote Access Products	<input type="checkbox"/> 43. <input type="checkbox"/> Wireless Data Equipment/Services		
WAN EQUIPMENT & SERVICES			
A	B	A	B
<input type="checkbox"/> 45. <input type="checkbox"/> Modems	<input type="checkbox"/> 51. <input type="checkbox"/> FT-1/T-1/T-3 Services	<input type="checkbox"/> 58. <input type="checkbox"/> Managed LAN/Router Services	
<input type="checkbox"/> 46. <input type="checkbox"/> Cable Modems	<input type="checkbox"/> 52. <input type="checkbox"/> xDSL Services/Products	<input type="checkbox"/> 59. <input type="checkbox"/> Fax Servers/Services	
<input type="checkbox"/> 47. <input type="checkbox"/> Asynchronous Transfer Mode (ATM)	<input type="checkbox"/> 53. <input type="checkbox"/> Diagnostic/Test Equipment	<input type="checkbox"/> 60. <input type="checkbox"/> Other WAN Equipment/Services	
<input type="checkbox"/> 48. <input type="checkbox"/> Frame Relay Equipment including FRADS	<input type="checkbox"/> 54. <input type="checkbox"/> DSU/CSU		
<input type="checkbox"/> 49. <input type="checkbox"/> Frame Relay Services	<input type="checkbox"/> 55. <input type="checkbox"/> PBXs	None of the above (1 - 60)	<input type="checkbox"/> 61. <input type="checkbox"/>
<input type="checkbox"/> 50. <input type="checkbox"/> ISDN Equipment/Services	<input type="checkbox"/> 56. <input type="checkbox"/> Voice/Video over IP Gateways		
	<input type="checkbox"/> 57. <input type="checkbox"/> Videoconferencing		

9. Please indicate the Network hardware/software/services that you are currently involved in purchasing or plan to purchase: (check ALL that apply)

A. Currently involved in purchasing		B. Plan to purchase	
SYSTEMS/PERIPHERALS			
A	B	A	B
<input type="checkbox"/> 01. <input type="checkbox"/> Laptops/Notebooks	<input type="checkbox"/> 05. <input type="checkbox"/> Storage/Backup (Optical, Disk, Tape, RAID)	<input type="checkbox"/> 08. <input type="checkbox"/> Minis	
<input type="checkbox"/> 02. <input type="checkbox"/> PCs	<input type="checkbox"/> 06. <input type="checkbox"/> Printers	<input type="checkbox"/> 09. <input type="checkbox"/> Mainframes	
<input type="checkbox"/> 03. <input type="checkbox"/> Windows Terminals/Thin Clients	<input type="checkbox"/> 07. <input type="checkbox"/> Printer/Fax/Copier Hybrids (Multifunction Printers)	<input type="checkbox"/> 10. <input type="checkbox"/> Fax/Modem Boards	
<input type="checkbox"/> 04. <input type="checkbox"/> Workstations		<input type="checkbox"/> 11. <input type="checkbox"/> Memory/Chips/Boards/Cards	
SOFTWARE/APPLICATIONS			
A	B	A	B
<input type="checkbox"/> 13. <input type="checkbox"/> Network Management (incl. SNMP)	<input type="checkbox"/> 20. <input type="checkbox"/> Groupware	<input type="checkbox"/> 27. <input type="checkbox"/> Document Management	
<input type="checkbox"/> 14. <input type="checkbox"/> Systems Management	<input type="checkbox"/> 21. <input type="checkbox"/> E-Mail	<input type="checkbox"/> 28. <input type="checkbox"/> Site Metering Tools	
<input type="checkbox"/> 15. <input type="checkbox"/> Security	<input type="checkbox"/> 22. <input type="checkbox"/> Enterprise Resource Planning (ERP)	<input type="checkbox"/> 29. <input type="checkbox"/> Data Warehousing	
<input type="checkbox"/> 16. <input type="checkbox"/> Directory Services	<input type="checkbox"/> 23. <input type="checkbox"/> EDI	<input type="checkbox"/> 30. <input type="checkbox"/> Anti Virus Software	
<input type="checkbox"/> 17. <input type="checkbox"/> Operating Systems	<input type="checkbox"/> 24. <input type="checkbox"/> Desktop Videoconferencing	<input type="checkbox"/> 31. <input type="checkbox"/> Multimedia	
<input type="checkbox"/> 18. <input type="checkbox"/> Applications Development Tools	<input type="checkbox"/> 25. <input type="checkbox"/> Imaging	<input type="checkbox"/> 32. <input type="checkbox"/> Helpdesk	
<input type="checkbox"/> 19. <input type="checkbox"/> Database Management/RDBMS	<input type="checkbox"/> 26. <input type="checkbox"/> Middleware/Serverware	<input type="checkbox"/> 33. <input type="checkbox"/> Other Software/Applications	
SERVICES			
A	B	A	B
<input type="checkbox"/> 34. <input type="checkbox"/> BPO (Business Process Outsourcing incl. Financial Services, HR, Logistics, etc.)	<input type="checkbox"/> 35. <input type="checkbox"/> ASP Services	<input type="checkbox"/> 38. <input type="checkbox"/> Education/Training Services	
	<input type="checkbox"/> 36. <input type="checkbox"/> Call Center Outsourcing	<input type="checkbox"/> 39. <input type="checkbox"/> Other Services	<input type="checkbox"/> 40. <input type="checkbox"/>
	<input type="checkbox"/> 37. <input type="checkbox"/> Systems Integration/Consulting	None of the above (1 - 39)	

10. Please indicate the platforms that are currently installed/planned: (check ALL that apply)

A. Currently installed		B. Planned for purchase	
NETWORK PROTOCOLS			
A	B	A	B
<input type="checkbox"/> 01. <input type="checkbox"/> TCP/IP	<input type="checkbox"/> 05. <input type="checkbox"/> APPC/APPN/LU 6.2	<input type="checkbox"/> 09. <input type="checkbox"/> HTTP	
<input type="checkbox"/> 02. <input type="checkbox"/> IPV6	<input type="checkbox"/> 06. <input type="checkbox"/> NETBIOS/NETBUEI	<input type="checkbox"/> 10. <input type="checkbox"/> Other Network Protocols	
<input type="checkbox"/> 03. <input type="checkbox"/> SNA	<input type="checkbox"/> 07. <input type="checkbox"/> NFS		
<input type="checkbox"/> 04. <input type="checkbox"/> Novell IPX/SPX	<input type="checkbox"/> 08. <input type="checkbox"/> SNMP		
LAN/WAN ENVIRONMENT			
A	B	A	B
<input type="checkbox"/> 11. <input type="checkbox"/> Gigabit Ethernet	<input type="checkbox"/> 17. <input type="checkbox"/> Layer 3,4 Switching	<input type="checkbox"/> 23. <input type="checkbox"/> DSL	
<input type="checkbox"/> 12. <input type="checkbox"/> Switched Ethernet	<input type="checkbox"/> 18. <input type="checkbox"/> FDDI	<input type="checkbox"/> 24. <input type="checkbox"/> ISDN	
<input type="checkbox"/> 13. <input type="checkbox"/> Fast Ethernet	<input type="checkbox"/> 19. <input type="checkbox"/> 100Base-T	<input type="checkbox"/> 25. <input type="checkbox"/> Frame Relay	
<input type="checkbox"/> 14. <input type="checkbox"/> Ethernet	<input type="checkbox"/> 20. <input type="checkbox"/> 10Base-T	<input type="checkbox"/> 26. <input type="checkbox"/> Private Line T1, T3, FT-1, SONET	
<input type="checkbox"/> 15. <input type="checkbox"/> ATM	<input type="checkbox"/> 21. <input type="checkbox"/> Fibre Channel	<input type="checkbox"/> 27. <input type="checkbox"/> Other LAN/WAN Environment	
<input type="checkbox"/> 16. <input type="checkbox"/> Token Ring/Token Ring Switching	<input type="checkbox"/> 22. <input type="checkbox"/> Wireless LANs		
NETWORK OPERATING SYSTEM			
A	B	A	B
<input type="checkbox"/> 28. <input type="checkbox"/> Windows NT/Windows 2000	<input type="checkbox"/> 31. <input type="checkbox"/> Novell (NetWare 2.X,3.X)	<input type="checkbox"/> 34. <input type="checkbox"/> Banyan (Vines)	
<input type="checkbox"/> 29. <input type="checkbox"/> Novell (NetWare 5.X)	<input type="checkbox"/> 32. <input type="checkbox"/> LINUX	<input type="checkbox"/> 35. <input type="checkbox"/> IBM (LAN Server)	
<input type="checkbox"/> 30. <input type="checkbox"/> Novell (NetWare 4.X)	<input type="checkbox"/> 33. <input type="checkbox"/> Microsoft (LAN Manager)	<input type="checkbox"/> 36. <input type="checkbox"/> Other Network Operating System	
COMPUTER OPERATING SYSTEM			
A	B	A	B
<input type="checkbox"/> 37. <input type="checkbox"/> NT Workstation	<input type="checkbox"/> 42. <input type="checkbox"/> LINUX	<input type="checkbox"/> 47. <input type="checkbox"/> Digital VMS	
<input type="checkbox"/> 38. <input type="checkbox"/> Windows 2000	<input type="checkbox"/> 43. <input type="checkbox"/> DOS	<input type="checkbox"/> 48. <input type="checkbox"/> Macintosh	
<input type="checkbox"/> 39. <input type="checkbox"/> Windows 98/95/3.1	<input type="checkbox"/> 44. <input type="checkbox"/> OS/2, OS/2 WARP	<input type="checkbox"/> 49. <input type="checkbox"/> Other Computer Operating System	
<input type="checkbox"/> 40. <input type="checkbox"/> Intel based UNIX	<input type="checkbox"/> 45. <input type="checkbox"/> OS/400		
<input type="checkbox"/> 41. <input type="checkbox"/> RISC based UNIX (incl. SOLARIS)	<input type="checkbox"/> 46. <input type="checkbox"/> IBM MVS/MA/SE/ESA	None of the above (1 - 49)	<input type="checkbox"/> 50. <input type="checkbox"/>

11. Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Mainframes (Large Scale) 1. <input type="checkbox"/> IBM 2. <input type="checkbox"/> Other	B - Minis (Midrange) 1. <input type="checkbox"/> IBM RS/6000 2. <input type="checkbox"/> IBM AS/400 3. <input type="checkbox"/> Digital/Tandem/Compaq 4. <input type="checkbox"/> Unisys 5. <input type="checkbox"/> H-P 6. <input type="checkbox"/> Other	C - Workstations 1. <input type="checkbox"/> Sun Microsystems 2. <input type="checkbox"/> H-P 3. <input type="checkbox"/> Digital/Compaq 4. <input type="checkbox"/> IBM 5. <input type="checkbox"/> Silicon Graphics 6. <input type="checkbox"/> Other
---	---	--

12. What is the estimated gross revenue of your entire company/institution? (check ONE only)

1. <input type="checkbox"/> \$20 Billion or More	5. <input type="checkbox"/> \$100 Million to \$499.9 Million	9. <input type="checkbox"/> \$4.9 Million or Less
2. <input type="checkbox"/> \$10 Billion to \$19.9 Billion	6. <input type="checkbox"/> \$50 Million to \$99.9 Million	10. <input type="checkbox"/> None of the above
3. <input type="checkbox"/> \$1 Billion to \$9.9 Billion	7. <input type="checkbox"/> \$10 Million to \$49.9 Million	
4. <input type="checkbox"/> \$500 Million to \$999.9 Million	8. <input type="checkbox"/> \$5 Million to \$9.9 Million	

13. For which areas outside of the U.S.A. do you have purchase influence? (check ALL that apply)

1. <input type="checkbox"/> Europe	3. <input type="checkbox"/> South America	5. <input type="checkbox"/> Middle East	7. <input type="checkbox"/> Canada
2. <input type="checkbox"/> Asia	4. <input type="checkbox"/> Australia	6. <input type="checkbox"/> Africa	8. <input type="checkbox"/> None

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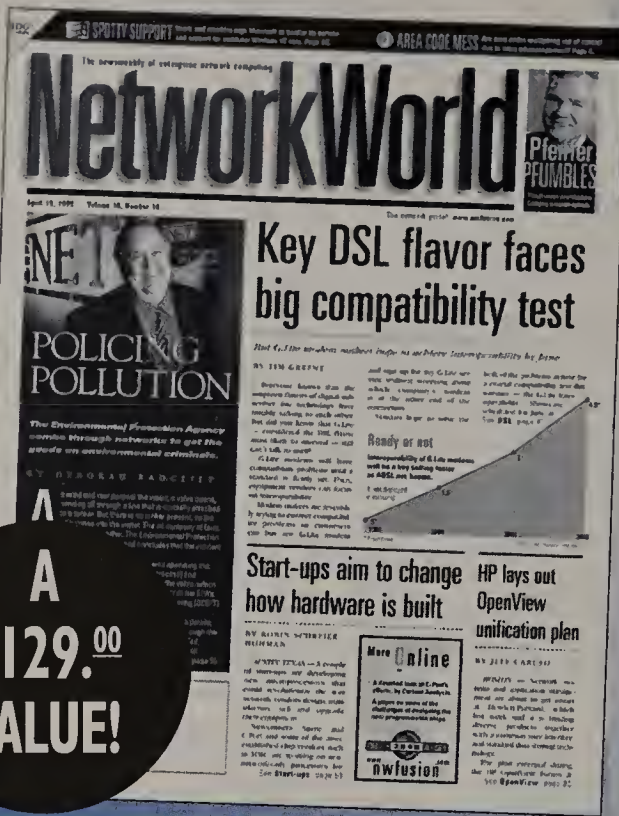
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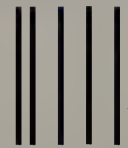
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Carriers & ISPs

Briefs

Wireless paging companies **Metrocall** and **WebLink Wireless** have announced that the companies are merging and seeking bankruptcy protection. While last week's press release announcing this news focuses on the joining of assets, such as 6.2 million Metrocall and two million WebLink customers, the companies also disclosed that they are filing for Chapter 11 protection. Shareholders will receive 50% of the common stock of the new company. The merger is subject to approval by regulators and creditors, and is also contingent on the new company's ability to secure financing.

Nasdaq halted PSINet stock trading last week after the ISP announced it would be late filing its 2000 year-end financials with the Securities and Exchange Commission. The ISP requested a 15-day extension to file its Form 10-K, which many believe will be the ISP's final move before seeking bankruptcy protection. PSINet has \$254 million in cash and cash equivalents, but that may not be enough to keep the company afloat. "There can be no assurance that (PSINet) will not run out of cash," according to a statement the company issued last week.

PSINet: www.psinet.com.

Qwest Communications last week began offering DSL access in the St. Louis metropolitan area. Later this month, the provider will also begin offering services in St. Louis over a fiber network spanning more than 1,400 miles. Qwest's DSL services, branded **Qwest Integrated Business Solutions**, offer speeds of 256K bit/sec and higher.

The services will be sold under the name **Qwest Integrated Fiber Solutions**.

Qwest: www.qwest.com

Bankruptcy clouds fixed wireless arena

Advanced Radio Telecom files for Chapter 11, other vendors continue to struggle.

BY DENISE PAPPALARDO

Fixed wireless service providers may be heading for even harder times in the wake of one of their own biting the dust.

Advanced Radio Telecom (ART) filed for Chapter 11 bankruptcy protection last week. The firm's inability to drum up substantial revenue is believed to be one of the reasons why the company failed, but analysts believe the problems ran deeper.

Other service providers that offer fixed wireless services — such as Teligent, WinStar Communications and XO Communications — are in similar situations.

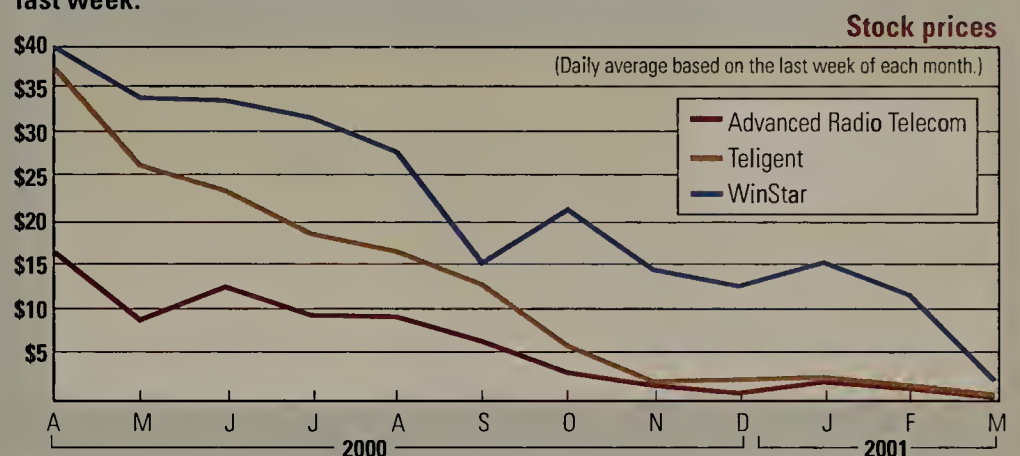
"About 60% of the fixed wireless service providers' problems have to do with the current market, but the other 40% is due to the nature of their business," says Lisa Pierce, an analyst at consulting firm Giga Information Group.

High-speed fixed wireless services that ART and its competitors offer are still considered by many to be unproven technologies, says Jeff Moore, senior analyst for network services at consulting firm Current Analysis.

"Recent events show that it's very difficult for fixed wireless service providers to

Fixed wireless dive

While nearly all of Wall Street is suffering, fixed wireless service providers are being hit particularly hard. Advanced Radio Telecom filed for bankruptcy protection last week.



compete," he says. "The cost of building networks is a factor, but the fact that the technology is not believed to be as reliable as land-line services is also a barrier."

There are line-of-sight and rain-fade issues that hamper many providers. Heavy rain or snow, even a large amount of dust in the air, can contribute to poor service quality, Moore says.

While fixed wireless players as a group

are fighting an uphill battle, analysts believe WinStar and XO may stand a better chance at surviving in the long run.

WinStar and XO have a mix of fixed wireless and traditional land-line services, whereas ART and Teligent have made the mistake of only offering fixed wireless, Moore says.

"ART and its competitor Teligent also
See ART, page 28

Managed service provider offers international plan

Company relies on operations centers in Washington, London and Singapore.

BY MICHAEL MARTIN

RESTON, VA. — KeyBridge, a managed services firm focused on companies requiring mission-critical Internet infrastructures, was expected to officially launch its offerings this week.

KeyBridge, of Reston, Va., is keying in on small to midsize businesses requiring an international or regional online presence. The services KeyBridge has on tap include system and security architecture and management, storage architecture, network monitoring and VPN management.

"Large enterprises can afford to build their own Web infrastructures, but small to midsize companies can't afford the skill sets required," says Paul Nemirovsky, KeyBridge's CEO. "But for some smaller businesses the Web is mission-critical, so

there's an opportunity here."

KeyBridge is a services-only company. It will work with customers to integrate and support a variety of applications. The com-

pany will also work with customers to select the most appropriate telecom service provider.

KeyBridge will monitor its customers' operations through three network operations centers (NOC) in Washington, D.C., London and Singapore. The London and Washington sites are completed, while the Singapore site should be up and running later this year.

While KeyBridge will try to steer customers toward the collocation space of KeyBridge investor Global Switch, the company will work with customers housed in other data centers.

Global Switch, which has invested \$60 million in KeyBridge, operates more than 5 million square feet of collocation facilities worldwide.

See KeyBridge, page 28

www.nwfusion.com

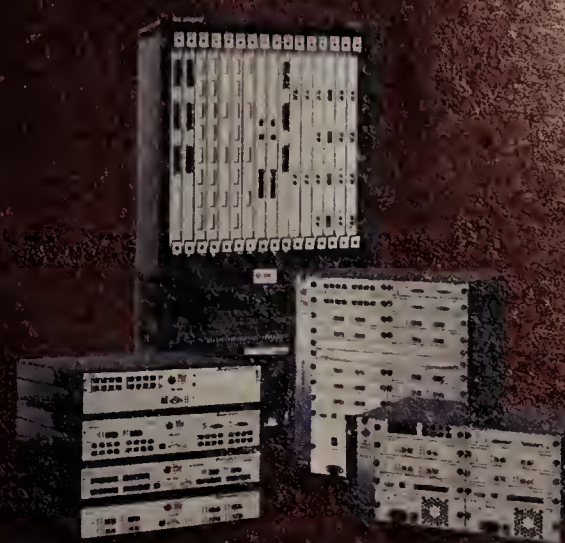
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Canon's dynamic Auto-Tracking system, refined over nine years of testing and three generations of product, optimizes transmission even from the tops of buildings prone to sway and vibration, to keep you up and running. To reduce costs, others have eliminated this valuable feature, and instead

spread the beam, diffusing power and thus increasing susceptibility to inclement weather.

Canobeam III also features a one-piece design, where the controller is built into the head unit, as well as SNMP (optional). For more detailed monitoring of the DT-50, the unit features a Remote Monitoring Function in which an RS-232C cable is connected between the unit and a PC.

Canobeam III requires no licensing or channel allocation, can be set up in minutes, and operates interference-free assuring reliable, confidential transmission.



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The Edge

Service provider developments at
the juncture between the enterprise
and the new public network

Briefs

SwapDrive rolled out an online storage and file management service last week for service providers to offer their customers.

Dubbed ISP SwapDrive Program, the service lets ISPs provide storage space to customers to store files or folders, which they can access over the 'Net. Users can create groups and let other users share files. The files are compressed and encrypted before transfer.

Pricing is available on a per-gigabyte basis for storage exceeding 10G bytes. One option lets ISPs purchase storage for resale to customers.

SwapDrive: www.swapdrive.com

Lucent last week announced support for two high-speed modem standards in its dial-up remote access servers.

By supporting the V.92 and V.44 standards, Lucent's MAX TNT and APX 8000 servers can move data faster and improve throughput. Lucent's V.92 code enables upstream modem speeds of up to 48K bit/sec, which is 43% faster than current V.90 modems.

Lucent's V.92 and V.44 software code are currently available.

Lucent: www.lucent.com

Net to Net Technologies this week unveils a plan to roll quality of service into its Ethernet-based DSL access multiplexers.

Called AutoQoS, the feature will rely on 802.1p tags, or Type of Service bits. The company says by enabling QoS, service providers can offer differentiated services backed by service-level agreements.

AutoQoS will be available through a firmware upgrade in the fourth quarter this year. The upgrade is free for Net to Net customers with service subscriptions.

Net to Net: www.nettonettech.com

Bringing DSL to the remote cabinet

BY MICHAEL MARTIN

Occam Networks last week unveiled a line of broadband-loop carriers designed to ease the rollout of DSL to remote terminals.

The BLCs combine the functions of a DSL access multiplexer (DSLAM), a media gateway and a digital-loop carrier (DLC) in one box. They support plain old telephone service and asymmetric DSL (ADSL) on each port and can be integrated with voice softswitches via media gateway functions.

Occam's two initial BLCs are the BLC-1100, which has a one-rack-unit profile, and the BLC-2200, which has a five-rack-unit profile (see graphic). The BLC-1100 supports ADSL, while the BLC-2200 can support ADSL, single-pair high-bit-rate DSL or Gigabit Ethernet.

Although the BLCs are designed to fit into remote cabinets, Occam says they can also be deployed in central offices. But most telecom providers service between 20% and 40% of their subscriber base from remote terminals, says Claudia Bacco, an analyst with research firm TeleChoice.

"Right now there's a market the service providers can't address with DSL and that's the [digital-loop carrier] market," Bacco says.

To serve DSL to these subscribers,

DSL-enabling the remote terminal

Occam's broadband-loop carrier comes in two models.

BLC-1100

- One-rack unit
- 24 ADSL/POTS ports
- 4xT-1 interface
- 1x10/100 Ethernet interface



BLC-2200

- 64G bit/sec redundant switching fabric
- OC-3/DS-3 ATM interface or a Gigabit Ethernet interface
- Modular five-rack unit
- Hot-swappable
- Up to 288 ADSL/POTS ports
- Up to 240 G.SHDSL ports
- Up to 96 Gigabit Ethernet ports



providers had to install a DSLAM and cabinet near each remote terminal and cross-connect the DLC and DSLAM, or rely on proprietary line card technology in the DLCs. The line card technology has not been popular with providers, Bacco says, because it often doesn't work well with other DSL equipment the providers might have installed.

Two small incumbent local exchange carriers are putting the BLCs through their paces.

Rural Telephone, in Lenora, Kan., has two BLC-1100s in service — one in a remote terminal and the other in a central

office. Shane Broyles, the service provider's research and development coordinator, says the company has been serving its DLC clients through ISDN-based DSL, using ISDN line cards.

"But we figured the day was coming when 128K bit/sec wasn't going to work for people," he says.

The BLC-1100 is slated for general availability in the third quarter, while the BLC-2200 will be available in the first quarter of 2002. Pricing has not been finalized on the BLCs, but Occam expects per-port pricing to be between \$450 and \$500.

Occam: www.occamnetworks.com

Equipe aims to bridge ATM, MPLS networks

BY JIM DUFFY

ACTON, MASS. — Start-up Equipe Communications this week will unveil its first and flagship product, a switch for the core of service provider networks designed to transition ATM-based infrastructures to IP and Multi-protocol Label Switching.

The E3200 combines ATM switching and IP/MPLS routing with a SONET/Synchronous Digital Hierarchy optical cross connect in a modular chassis that scales to 320G bit/sec of optical interface density and 200G bit/sec of switching capacity. The platform is intended to let service providers migrate gradually from ATM to IP/MPLS without a wholesale disruption to their service infrastructure and revenue base.

The E3200's single-rack footprint can support 32 OC-192s, 128 OC-48s and 512 OC-12 and OC-3s.

Traffic entering the E3200 from ATM/frame relay switches, IP edge routers and Class 4 or 5 voice switches is groomed and multiplexed at the STS-1 level by the E3200's integrated cross connect. It is then switched through the E3200's packet and cell fabric, and converted to wavelengths for transport over a dense wave division multiplexer core or handed off to a high-speed leased-line backbone network.

Service providers evaluating the E3200 call it unique in its ability to bridge the ATM and MPLS worlds.

"We provide converged voice and data services over a single line using an integrated access device, but we also provide Internet services via that same platform," says Mike Johnson, CTO at Lightyear. "So there currently is an ATM-to-Internet link that we think that we may be able to do more efficiently using MPLS as opposed to permanent virtual circuits. We're looking

at Equipe as possibly being able to help us with scalability between our Internet platform and our ATM platform."

The E3200 costs \$140,000. The firm expects to ship the product by year-end.

Equipe: www.equipecom.com

www.nwfusion.com

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Briefs

Business software maker SAP AG has agreed to acquire TopTier Software, a portal software company, for \$400 million. The cash deal, which is expected to be finalized in the second quarter, will make TopTier a wholly owned subsidiary of SAP. TopTier reported revenue in 2000 of just \$20 million, 20 times less than its purchase price. SAP says TopTier's technology will be integrated into its mySAP Workplace product line. The acquisition will provide SAP with TopTier customers, including DaimlerChrysler and Hewlett-Packard, enabling the German company to compete with Oracle and Siebel Systems in the enterprise portal market.

Security vendor Tripwire has announced Tripwire for Web Pages, software for the Apache Web server that prevents tampering with Web site content. The software lets users create a digital hash of the Web pages. Every time a Web page is requested by a user, Tripwire for Web Pages checks the hash. The software costs \$1,095 and is available now. Tripwire: www.tripwire.com.

BroadVision has announced the latest version of its e-business application platform, BroadVision One-To-One Enterprise 6.0, and formed a partnership with Informix Software. One-To-One Enterprise 6.0 adds Java 2 Platform, Enterprise Edition support, including support for Enterprise JavaBeans component architecture, JavaServer Pages technology and Java Servlet APIs. BroadVision's new platform includes enhanced debugging tools. Also, Informix says it has ported BroadVision's new release to IDS 9, providing an online transaction-processing platform.

Informix: www.informix.com;
BroadVision: www.broadvision.com

Microsoft rethinks Win 2000 lineup

Next release of server software could include "Web Blade" to handle Web serving chores.

BY JOHN FONTANA

Microsoft is toying with ideas for the Windows 2000 product line that would give IT executives fine-tuned versions of the operating system geared toward specific computing and management requirements — such as Web farms or branch offices.

The current Win 2000 line includes Server, Advanced Server and DataCenter Server.

Microsoft officials said recently they want Advanced Server to be the enterprise standard, with DataCenter Server as its companion for high-end computing in a managed environment. That would leave the Server edition for unmanaged branch offices or small offices.

In addition, with the next release of Win 2000, code-named Whistler, Microsoft is contemplating adding Web Blade, a preconfigured operating system for supporting the front end of three-tiered Web applications. Enterprise customers could plug the server into a rack much like blades are plugged into routers and switches.

In theory, the blade could be stripped

of unneeded features, installed as a "headless" system and sold to companies at an attractive price.

The Server, or standard version, of Win 2000 accounts for nearly 70% of sales, according to market research firm IDC, and is priced at least \$2,000 less than Advanced Server. The Server version, however, does not support more than two processors or clustering. But corporations are using Server as a Web server, which lets them take advantage of the stability of the platform without having to deploy Active Directory.

"Microsoft is trying to diversify the product mix," says Al Gillen, an analyst with IDC. "But in doing so, they will have to drive down the price points." He also says Microsoft may be lining up a lower-cost product to divert enterprise customers from interest in Linux as a Web server operating system.

During his keynote address at the recent Windows Hardware Engineering Conference, Brian Valentine, senior vice president of the Windows Division, said Microsoft is "looking very hard at having a Web blade or a Web-centric or a Web-server edition of the server also that allows you to build out that N-tiered

architecture with Web servers on the front, application and Advanced Servers in the middle, and then DataCenter Servers to run your databases on the back end."

Valentine said the Server edition would be simplified for non-IT professionals, while further innovation would be added to Advanced Server and DataCenter Server. He acknowledged that pricing would have to be adjusted so enterprise users could be swayed to replace the Win 2000 Server version with the Advanced version.

Valentine declined to comment on the
See **Win 2000**, page 34

www.nwfusion.com

WINDOWS 2000 PLATFORM

Get an overview of Microsoft's server line and check out a chart outlining the server differences.



Okena fields software to prevent file tampering

BY ELLEN MESSMER

WALTHAM, MASS. — Security start-up Okena last week made its debut with Windows NT-based software to protect against a wide variety of threats, including file tampering or denial-of-service attacks on Microsoft's Internet Information Server Web server, SQL Server database and Office and Outlook desktops.

With StormWatch, users deploy software agents inside the firewall and can monitor network transactions on the server and the desktop, reviewing traffic and ensuring operations do not violate customer-defined rules. For instance, StormWatch

PROFILE: OKENA

Location:	Waltham, Mass.
Founded:	November 1999 by Todd Brennan, CTO.
Product:	StormWatch, security software that protects Windows NT-based servers from unauthorized use.
Financing:	\$4.3 million from APV Technology Partners, Thomvest Int'l
Employees:	37
Fun fact:	Before founding Okena, Brennan served four years as a staff member at the Massachusetts Institute of Technology's Lincoln Laboratory Satellite Communications Division.



would prevent changing of registry keys or disallow changes to the Web server except through a specific application.

The idea is to prevent hacker attempts at Web defacement that are

often carried out through buffer overflows.

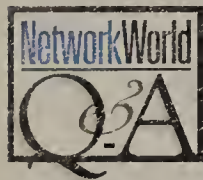
StormWatch can look out for computer viruses that trigger mass mailings by using Visual Basic Scripts to raid the user's directory.

"If Outlook launches a network application to send a large volume of e-mail, StormWatch will catch that," says Eric Ogren, an Okena vice president. StormWatch would warn the user that the mass mailing is about to occur, with the user gaining the option to allow it if it's legitimate.

Conventional security software addresses computer threats that have already been identified, while Okena is designed to fend off existing attacks
See **StormWatch**, page 37

Concord CEO puts focus on finding network faults

Vendors need to combine fault, performance and availability management capabilities into their software.



With IT budgets getting tight and skilled staff always

short, Concord CEO Jack Blaesus says vendors must offer users products that manage network performance, availability and other activities all in one fell swoop. Network World Staff Writer Denise Dubie recently talked with Blaesus about why fault management issues are heating up.

Why has fault management become an important issue?

Every corporation is becoming more and more dependent on its Internet infrastructure. Historically [fault management] affected your own employees because that's who was tied to your infrastructure. But now fault management affects your customers and your vendors, and it becomes more mission-critical than in the past.

How has fault management changed?

People are highlighting the fact that when their customer or vendor or employee clicks

on "Enter" at any given moment, that application better be available and better be available in a quick fashion. Therefore, the need to have the infrastructure — the end-to-end infrastructure from the client through the network through the back-end servers — up and running effectively has become more mission-critical than it has in the past five years. And every year, every quarter it's becoming more and more so because it's hard for anyone to do work if your infrastructure is down.

What's driving fault management vendors?

The pressure is on to make sure the infrastructure is working, which means several things. Not only is fault management becoming more important, but the integration of faults and availability and performance is becoming critical. A fault is a total degradation in performance — you don't have any. But there are degradations, so if you are going to manage an infrastructure properly, you not only have to manage the hard failures, you also have to manage the degradations. You could have a degradation where nothing failed, but the performance of some part of your

used for. The second beta version of Whistler, which is not replete with features yet, shipped at the end of March.

It is not certain that Microsoft will release a Web Blade, and Valentine's comments are a likely trial balloon with potential users. ■



infrastructure did. Your application servers, your database servers, your Web servers, your infrastructure provided to you by an AT&T, an MCI or a Sprint is performing but not at the proper rate. You are going to see a slowdown that is going to adversely affect your customers.

What's the main concern for users with fault management?

There are a shrinking number of IT professionals available to the enterprise and the service providers. As a user, you have to purchase or acquire a solution, which requires a very low administrative footprint. It's not effective and doesn't scale if it requires 15 Ph.D.s to run it, because they're not available right now.

How can vendors tailor their products to better serve customers?

The customers, both enterprises and service providers, are facing the need for solutions that are easy to install, maintain and run with the minimum number of average human beings. The problem people have is a lot of the solutions are comprehensive, but it takes too many people and too many bright people to manage them. And the other thing you have to move toward, with the shrinking number of people, is the whole concept of a self-healing infrastructure, which automatically takes corrective action. Ultimately, you want to eliminate the need for an IT person to get there, but the

industry isn't completely there yet. In the meantime, what you have to do is shrink the administrative footprint by providing as much information automatically.

Why is managing faults such a challenge?

Why Micromuse has created a business is because network management systems deliver too many alerts about faults. And typically on a network operations center, you have all red lights and icons.

Eventually people happily shut off the screen and wait for their pager to go off. All of us have to do what we can to eliminate the noise from too many faults.

How can vendors improve upon their current fault management offerings?

There is a convergence happening in the industry of fault, availability and performance. The vendors, such as Concord, Hewlett-Packard, Tivoli, BMC and Micromuse, have to provide a solution that includes fault, availability and performance. And they have to provide a solution that provides coverage on the entire infrastructure, which means the client, the network, the applications and the servers supporting those things.

You'll see, in the next two years, more demand for converged solutions that combine fault, availability and performance management.

What is missing from current fault management systems?

It's not progressed to the point where it's totally automated, where you can do it with a fewer number of people. There's still a lot of work being done to really tighten up on what fault is critical. There are a lot of attempts to do root-cause analysis.

How do root-cause analysis and fault management come together?

Some of the problems [the industry] is trying to solve with current root-cause solutions are going on a technical path that may not be the right

one. If you are trying to solve a root-cause problem by using a topological map, there are a couple of problems with that approach. Mainly that map is changing on a minute-by-minute basis, so your whole analysis could be wrong as it changes.

You have to understand the entire interconnection of every device in the infrastructure before you know what's going on.

What do you think would be a better approach to root-cause analysis?

It's a difficult problem to solve, although there are companies — people such as RiverSoft, SMARTS and Tavve — working to solve it in terms of topology. You have to look at what business units are depending on what services, and not worry about the topological connection. Plus, if you try to determine a root cause based on topology, you have to know everything before you know anything.

Who do you see leading the pack toward this converged offering?

You can take the Computer Associates, the Tivolis, the BMCs, the NetIQs, the Micromuses and the Concords. We all have our strengths and weaknesses.

Micromuse has world-class fault management, but it needs to expand into performance. BMC has world-class systems management, they need to move into the network. Concord has world-class performance management, and now we're tackling faults.

We're all working toward that goal, but the company that executes across networks, applications and systems, and manage faults, performance and availability will be the one that comes out on top. ■

Win 2000,
continued from page 33

issues in his keynote.

A source close to Microsoft says the company was testing some new Whistler configurations based on buying trends and what the servers are being

Server menu

Microsoft may add a server called the Web Blade and reposition the other versions of Windows 2000 when the next edition of Win 2000, code-named Whistler, ships late this year.

Server	Target	Highlight
Web Blade	Self-contained Web server	Single-purpose server
Server	Small or branch office	Built for non-IT professional
Advanced	Enterprise	Corporate workhorse
DataCenter	High-end computing	Handles database, transactions

Web Applications

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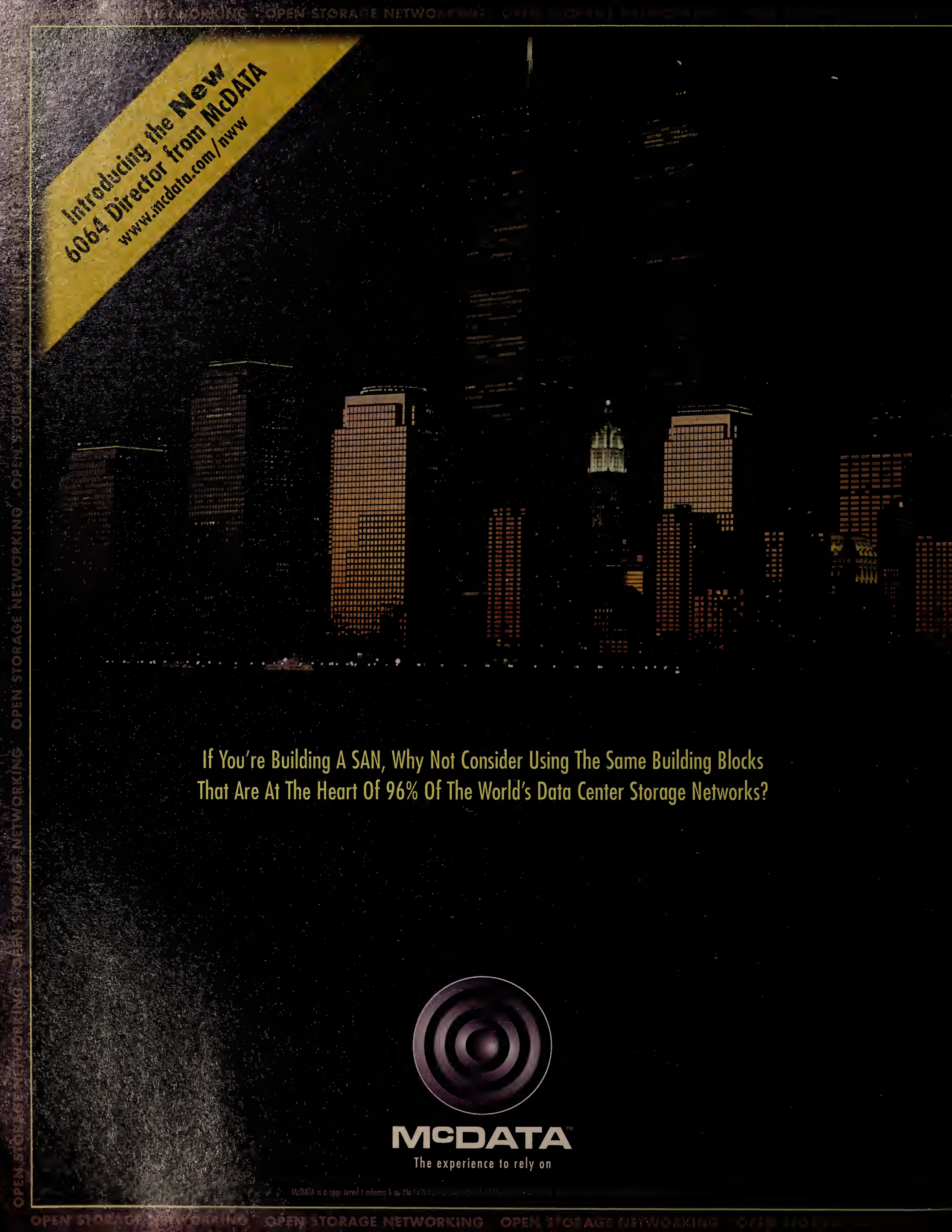


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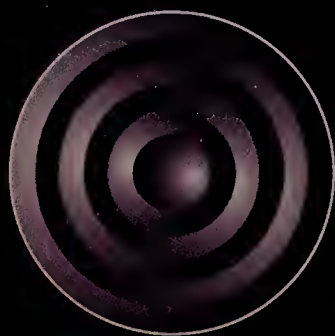


*xSeries 370 solution based on 32 x370 servers, with 8-way Intel Pentium III Xeon processors with 16GB memory running Microsoft Windows 2000 Datacenter Server operating system. TPC-C results referenced: IBM eServer xSeries 370: 688,220.90 tpmC, \$28.89/tpmC, available 05/31/01; Sun Enterprise 10000: 156,873.03 tpmC, \$48.81/tpmC, available 2/28/01; IBM eServer pSeries 680 Model 7017-S85: 220,807.27 tpmC, \$43.30/tpmC, available 4/13/01. Data is current as of 3/19/01. TPC-C, tpmC, \$/tpmC are trademarks of the Transaction Processing Performance Council. IBM, Active PCI, the e-business logo, Light Path Diagnostics, pSeries, X-architecture and xSeries are trademarks or registered trademarks of International Business Machines Corporation. UNIX is a registered trademark in the U.S. and other countries licensed exclusively through The Open Group. Intel, the Intel Inside logo, Pentium and Pentium III Xeon are trademarks or registered trademarks of Intel Corporation. Microsoft, SQL Server and Windows are trademarks or registered trademarks of Microsoft Corporation. All other product names are or may be trademarks of their respective companies. © 2001 IBM Corporation. All rights reserved.



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Enterprise Applications

'Net Insider . Scott Bradner

ALMOST A JOKE

Since at least the late 1970s it has been a tradition in the Internet Engineering Task Force (IETF) to publish April Fools' Day RFCs. Starting with the telnet randomly lose option (RFC 748) in 1978 and continuing to the present day, the RFC editor has published real-looking but bogus technical specifications on the first of April. The purpose of these ersatz standards is to entertain and, sometimes, to make a point.

The most well-known April Fools' Day RFC is the 1990 "Standard for the transmission of IP datagrams on avian carriers"



(RFC 1149), which was updated nine years later by RFC 2549, "IP over

Avian Carriers with Quality of Service." These are parodies of the rush to run the Internet Protocol over just about any type of media — in this case, carrier pigeons.

But they also can be used to see if a router or host vendor is paying attention. Last year a European firm issued a request for proposals that listed a large number of IETF RFCs and asked that bidders indicate which ones they supported. RFC 1149 was one of the listed RFCs. A number of would-be vendors checked the box to indicate they supported the technology, but at least two vendors were not fooled. Juniper Networks said that the RFC "was not serious" and Cisco said they only supported the technology April 1st.

This year, three April Fools' Day RFCs were published: RFC 3091, or "Pi Digit Generation Protocol," which describes a service that generates the value of pi

for hosts that can not do it for themselves; RFC 3092, a scholarly treatise on the "Etymology of 'Foo'"; and RFC 3093, written by Harvard graduate student Mark Gaynor and myself on a "Firewall Enhancement Protocol (FEP)." (All IETF RFCs can be obtained through the IETF Web site at www.ietf.org.)

This RFC is also a parody, but one that a number of people have already noted may be a bit too close to the truth for comfort. In it, we describe a way to run the Internet Protocol suite over HTTP, the transport protocol for the World Wide Web. Our stated rationale for this is the growing number of firewalls, which generally pass HTTP unmolested, being used by organizations are inhibiting the ability of the people behind the firewalls to try out new applications. In the RFC we claim that the FEP does not change the security barrier created by a firewall, since firewalls are generally ineffective if the attacker has a confederate on the inside.

There is a serious point lurking beneath the humor. The dynamic growth of the Internet was driven by the thousands of new applications whose development was enabled by the wide-open Internet. Now legitimate security worries are placing barriers in the 'Net. But these barriers slow innovation and the 'Net is the worse for them.

Disclaimer: Humor, or what passes for humor at the *Lampoon*, has been an undercurrent at Harvard for a long time but the University was not involved in the above joke.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

StormWatch, continued from page 33

and recognize probes from hackers before they damage applications.

Even though StormWatch, which starts at \$1,095, can't prevent threats such as distributed port scanning or denial-of-service attacks such as SYN Floods, the software will report to the management console about suspicious events.

In this security arena, Okena enters the market against competitors Pelican Security, Finjan, WatchGuard, Entercept and Alladin Knowledge Systems, vendors that provide software that attempts to guard against unauthorized activity by intercepting actions deemed invasive.

Litton PRC, a large systems integrator,

has tested the Okena software in its research and development labs with an eye toward deploying it internally and for possible sale to customers.

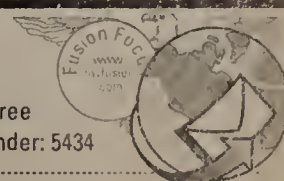
According to Perry Tsacoumis, technical director for R&D projects at Litton, StormWatch lets the user define a separate security policy for each machine on the network.

The product comes with a lot of "canned" security profiles so managers don't have to start from scratch defining them on their own, Tsacoumis says.

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Security

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Technology Update

An Inside Look at the Technologies
and Standards Shaping Your Network

Ask Dr. Intranet

By Steve
Blass

We have questions about DSL VPN security. We're concerned that drives on PCs could be shared by the world; Web

servers could be installed to serve mapped drives from the PCs; things like PC Anywhere and VNC could be used to access our network; and viruses could be propagated. How do you limit the effects of a compromised PC from attacking your network?

In places where you have administrative control over a VPN-connected PC, audit the configuration, settings and behavior, and remotely reset them when you detect abnormalities. Where you don't have control, monitor the traffic and behavior, and remotely disconnect the devices when you detect abnormalities. To lock out hijacked PCs authenticated to your VPN, you will need to authenticate an authorized user's physical presence or certified authorization at an application transaction level. Smart cards, authentication tokens, one-time passwords, an intrusion-detection system working with a virus-scanning gateway and a PC configuration monitoring and management suite can be used to build the access-control, authentication, authorization, auditing, accounting and administration capability you need to detect and drop offensive connections. At a minimum, you should time out inactive sessions, perform configuration checks at logon and install an intrusion-detection system.

Blass, a network architect at change@work in Houston, can be reached at drintranet@changeatwork.com.

Managing configuration changes

BY DENNIS MOREAU

At the foundation of today's networks lies a fragile, interdependent and sophisticated ecosystem of hardware and software configurations. Unfortunately this complexity has a downside. Problems arising from system misconfigurations are the largest source of network failures, system downtime, help desk calls and security breaches.

A new management discipline called configuration management is emerging to proactively manage the millions of configuration settings that exist in a typical enterprise network.

In an effort to ensure the highest levels of reliability for their networks, most companies establish standard configuration builds for their servers and workstations. But once these machines are deployed in production environments, their configurations inevitably begin to change.

Some modifications are planned, such as updates to drivers and changes in security policy, while others are unplanned, such as quick adjustments made by administrators to fix problems. Configuration management involves managing and monitoring these configuration standards. With centralized access to this critical information, companies can gain control over their networks.

The only way to track the enormous amount of configuration data is to deploy an intelligent agent on each device in the network. In large environments, a proxy strategy (one machine collecting from multiple devices) won't scale. Furthermore, the pain associated with managing the proxy relationships overrides the benefits.

Using the agent model, detailed configuration data such as device drivers, disk configuration and application data can be collected and transmitted to a central management repository.

The configuration management architecture should provide the flexibility to schedule data collections at frequent intervals as well as the ability to perform on-

request collections. The agent should only transmit data that has changed since the previous collection.

The management repository, usually a database, provides access to all of the configuration data in one centralized location. This database maintains detailed information on configuration changes made to each machine. With all of this data in a central database, including current machine configurations and a log of changes, you can get immediate answers to complex questions about a network.

on any given machine to pinpoint which settings have been modified.

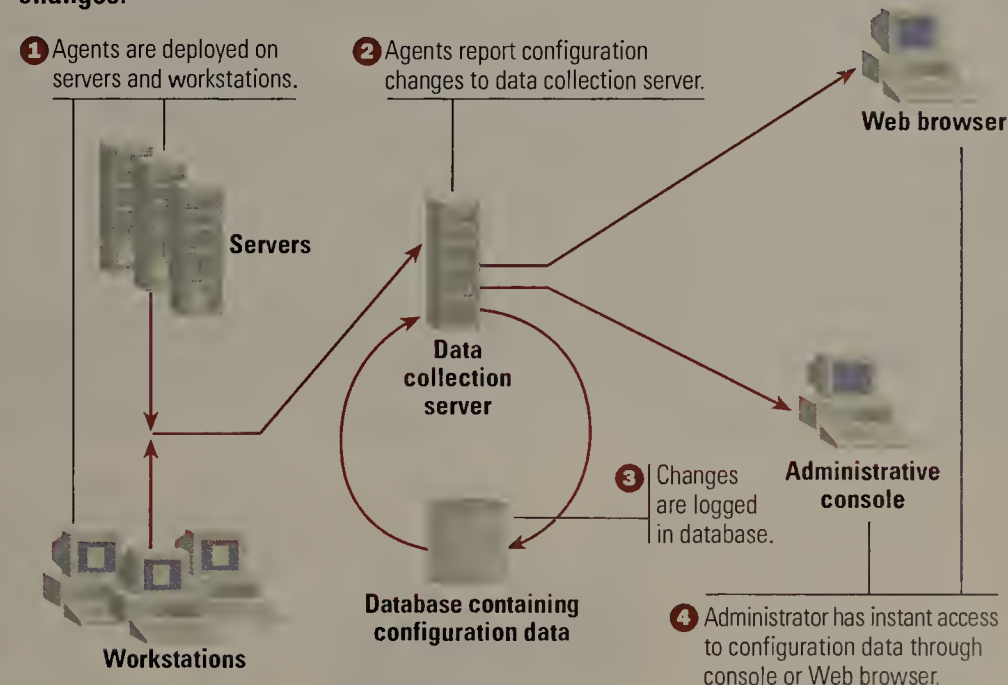
Besides monitoring, configuration management involves adjusting configurations to enforce compliance with corporate standards, change passwords across the company when someone leaves, and install patches to machines running a particular application.

Finally, administrators do not have the time to manually audit systems for critical configuration changes. To this end, a configuration management system can

HOW IT WORKS

Configuration management

By deploying agents across a network, an administrator can track configuration changes.



The central repository provides instant visibility into how machines are configured, and makes it possible to efficiently manage configuration changes across thousands of machines.

Due to the volume of configuration data that exists in a typical company, analytical tools are required to extract usable information from the database and let administrators:

- Identify machines that are out of compliance with corporate standards.
- View specific configuration settings for the entire network from a single view.
- Instantly assess risk associated with security configurations.
- View a log of configuration changes

send user-defined alerts when sensitive configuration settings are modified. These alerts summarize configuration activity.

Configuration management lets companies support technology and business objectives. It helps systems administrators prevent system outages and break-ins by monitoring and controlling configuration changes, while allowing companies to exert a much greater level of control and extract a much higher level of value from their network infrastructures.

Moreau is CTO of Configuresoft. He can be reached at dennis.moreau@configuresoft.com.

Got great ideas?

Network World is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).



Gearhead . inside the network machine . Mark Gibbs

WRAPPING UP DNS

This week we dive back into the depths of DNS records and related esoterica.

A DNS record type that we haven't

covered is the pointer, or PTR record. This record type reverse maps addresses to names, so for the network we've been talking about, the PTR

records would be:

2.120.65.206.in-addr.arpa	IN	PTR
alice.redqueen.com		
3.120.65.206.in-addr.arpa	IN	PTR
kitten.redqueen.com		
4.120.65.206.in-addr.arpa	IN	PTR
hatter.redqueen.com		
5.120.65.206.in-addr.arpa	IN	PTR

dormouse.redqueen.com

6.120.65.206.in-addr.arpa IN PTR dormouse.redqueen.com

As before, the addresses on the left side are reversed and the in-addr.arpa domain is added. This data goes in the database that resolves reverse lookups — 206.65.120.db (www.nwfusion.com, DocFinder: 3736).

Now we have the forward lookup database for our domain — redqueen.db, and our reverse lookup database — 206.65.120.db.

The final thing we need to do is set up a loopback network database. The loopback address — 127.0.0.1 — is used when a machine wants to send and receive packets to and from itself. In our example, this data is stored in the file 127.0.0.db and looks like this:

```
0.0.127.in-addr.arpa. IN SOA alice.
redqueen.com. admin.redqueen.com. (
200103051053 ;Serial
86400 ; 1 day refresh
3600 ; 1 hour retry
604800 ; 1 week expiration
86400 ) ; 1 day TTL
0.0.127.in-addr.arpa. IN NS alice.
redqueen.com.
```

```
1.0.0.127.in-addr. IN PTR localhost.
```

That final line is how the name server knows that "localhost" is mapped to 127.0.0.1 (the reverse of the record "localhost.redqueen.com IN A 127.0.0.1" in the database redqueen.db).

One thing we haven't discussed is how DNS works with e-mail. There's a special record type — the Mail Exchanger, or MX record — for specifying mail servers for a domain.

An MX record looks like this:

```
redqueen.com. IN MX 1 borogrove.
com.
```

This means borogrove.com will accept or relay mail for the domain redqueen.com. The value "1" is used when there are multiple mail servers for a given name to determine the order servers should be used in. If we had several servers:

```
redqueen.com. IN MX 1 borogrove1.
blackqueen.com.
```

```
redqueen.com. IN MX 2 borogrove2.
blackqueen.com.
```

```
redqueen.com. IN MX 5 hatter.black-
queen.com.
```

The lowest-numbered server would be tried first and, failing that, the next-highest-numbered server, and so on. Again, there's a lot more behind the mechanisms of MX records and how mail servers interact with them that we will forgo due to space constraints.

Anyway, that should get you started with a DNS server.

We have considered producing a more-detailed online Gearhead Guide to DNS. Let us know if you'd find it useful. Anyone interested in sponsoring it should drop a line to GHG@gibbs.com.

Next week, we'll go untethered. In the meantime, look up gearhead@gibbs.com.

If you could foresee the future, you would have ESP.



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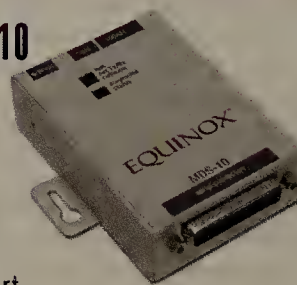
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Chris Seay

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Editorial

Is an integrated VPN in your future?

Curious about the state of the VPN scene, I recently looked up Jonathan Cohen, director of Advanced IP Network Services for AT&T's Data and Internet Services group.

Cohen says companies using ATM, frame relay and private lines are biting hard on the notion of Internet-based VPNs because the companies think they're less expensive. It turns out that isn't always the case.

Cost depends on many things, such as whether the VPN will be implemented in edge devices or delivered as a managed service by a carrier, and what it will replace. For example, VPNs are usually less

expensive than private lines but not necessarily less than frame relay.

Regarding the build vs. buy decision, Cohen says "customers that look at total cost of ownership would be hard-pressed to match the reliability and functionality of a private VPN that's done in the core of the net. But, if they have to make all kinds of changes to the net and need incredibly flexible security policies, the utility of a net-based solution may not meet their business requirements."

Most interesting is where he sees VPNs going. He says the future is in integrated VPNs that mix and match transport technologies.

An automotive company, for example, will likely have a frame relay or ATM backbone (that will ultimately migrate to private IP over a Multi-protocol Label Switching core) and 'Net-based links to dealerships. Management functions will be served from one virtual central console.

"That console will provide a single point of control, a single view of all the logical elements," Cohen says. "The development goal is to get to a common set of provisioning, care and life-cycle management systems that give you a single logical view of your environment."

How far away is this nirvana? Cohen says AT&T is already working on many of the underlying subsystems. "We'll probably be doing some testing in-year," he says, although admits it will be some time before this becomes product.

"The future of VPNs is making them truly software-defined networks," he says. "The things we were so successful doing with the voice SDN will become the model for the data SDN."

Providing AT&T can deliver the bandwidth and latency guarantees this kind of integrated environment would require, this vision seems pretty compelling.

— John Dix
Editor in chief
jdix@nwfusion.com

Message Queue

THINK GLOBALLY

Regarding "Wireless workforce plans stress corporate nets" (www.nwfusion.com, DocFinder: 3725):

My company is seeing this trend expand beyond just the small office/home office. Our sales and marketing teams demand access from all over the globe, via a VPN link or an RAS 1800 link to the office. This doesn't appear to be much of a problem, until you look at security.

Today's workers demand mobility and wireless access to corporate data. This adds pressure to IT departments, where budgets are already tight and time is more precious than gold.

Company leaders need to take note of where the global economy is heading and recognize a more demanding and mobile workforce.

Peter Birksmith
Technical consultant
MBRane Asia Pacific
Sydney, Australia

CLOUDY VISION

Thanks so much for the article "Cable firms cloud AT&T's VPN vision" (www.nwfusion.com, DocFinder: 3726). I am considering going to a Comcast cable modem soon and was hoping to use it for telecommuting through a VPN. Hopefully your article will bring attention to this company's gross misuse of its government-supported monopoly. To charge more and not provide any real benefit is absolutely insane.

Jeff Beitzel
Harrisburg, Pa.

Cable modem users unable to connect to corporate IP VPNs because of restrictive acceptable use policies may turn to DSL technology. While I understand the reluctance of cable companies, unless an employee works exclusively at home, there's no reason to pay more for the same connection. Most people work at home a few days per week and wouldn't want to pay double for Internet access.

John Pellegrino
Basking Ridge, N.J.

E-mail letters to jdix@nwfusion.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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VISA VIEWS

The article "Visa presses for e-comm security in wake of credit card theft" (www.nwfusion.com, DocFinder: 3727) was excellent. This is obviously only the tip of the iceberg, as more entities store more data and cost becomes a greater factor. Automated Clearing House payment processors increasingly use cost per transaction as an incentive to offer e-check payment systems. BPass has BankPass, which allows ATM network access to multiple financial institutions for account balances.

J.V. Conroy
President
JVergent Solutions
Williamston, Mich.

Visa is unbelievable. I called them four times in October to report a transaction I had on an e-commerce server, which did not have encryption running, by default allowed anonymous logon without a required password, and had file and print sharing enabled. Visa's response was, "We have no responsibility for that operation. Call the bank that issued your card." My local bank didn't care, because they had only my transaction on that e-commerce server. TrustE and VeriSign didn't care either; it's not their job. It took me a week to get the provider to get encryption running. I don't know how long it took them to plug the other problems.

Patrick Nolan
Owner
StormRanger Computer Security
Glens Falls, N.Y.

SECURITY SOLUTION

Scott Bradner's column "Can someone please sue one of them?" (www.nwfusion.com, DocFinder: 3728) was great. Maybe the solution would be to form some sort of Web site security certification group. Web sites would pay the group to analyze the sites' security and issue a certification if they passed. Then potential customers could look for this certification before submitting credit card or other sensitive info.

Jonathan Ford
Manchester, N.H.



TO AVOID SURPRISES, STAY A STEP AHEAD OF END USERS

We're in one of those periods of explosive expansion in the computer industry again. All sorts of new technologies are elbowing their way to the foreground. Problems arise when your users begin implementing these technologies before you're ready to support them. Let's take a brief look at what's hot, what's not and what to look out for.

- **Cable modems.** Businesses are starting to look at VPN over cable as an inexpensive way to connect local offices and home-based workers. My advice is to stay the heck away! Early adopters had a blast with this, as the fewer users a cable modem system has, the better it works. Now many metropolitan systems are at or beyond saturation, and performance is absurdly low, especially at peak times.

My organization recently measured connectivity via the main pipeline to our cable provider's head-end equipment. This line is fiber-optic, so noise, interference or gremlins can't account for the results. We were expecting about 3M bit/sec, but we actually got only less than 200,000 bit/sec. You're better off looking at other high-speed, inexpensive solutions.

- **XDSL.** Three things seem to be consistently true about xDSL: system reliability is still a little shaky; what's supposed to be an "always-on" connection isn't and often needs special software; and when xDSL is working, it's faster than blazes. Providers also swear that adding more users won't degrade performance (but this assumes that they oversubscribe available bandwidth).

- **Wireless offices.** They work pretty well, given that the typical office is a noisy place, electrically. The secret is how fast 802.11b performance degrades under some circumstances. As you move away from the access point, 11M bit/sec becomes 5.5M, then 3M, then 2M, then 1M bit/sec. Adding more users slows performance as well.

- **Public wireless workspaces.** Public spaces, such as airports, are wiring their facilities for 802.11b. Anyone who plunks down in the area and has a wireless adapter is automatically part of the neighborhood. Some spaces charge, some don't. Regardless of whether you're paying for the privilege, you've just



walked into espionage central. Wandering notebooks will need personal firewalls and dynamic VPNs at a minimum to safeguard data.

- **Bluetooth.** Everything I said about public wireless workspaces goes double here. Bluetooth is naturally "chatty," so if one device senses another, they'll have a nice long conversation about each other's capabilities and resources.

The bad news is they "talk" to each other directly (no hub or other access point), so it can happen anywhere two or more Bluetooth-enabled devices come together. Espionage on the hoof, so to speak. Individual firewalls will be especially de rigueur when these devices become popular.

These problems can be overcome, in most cases with very little technology. The trick is to stay slightly ahead of your users. Make "no surprises" your motto.

Shapiro is district technology coordinator for Kingsport City Schools in Tennessee. He can be reached at jsbapiro@kpt.k12.tn.us.

KICKING THE TIRES OF MICROSOFT OFFICE XP

Have you finished upgrading your users to Microsoft Office 2000 yet? If not, you'd better hurry, because you're going to need to start planning the upgrade to Office XP soon. At least, that's what Microsoft would like you to do.

Office XP should be hitting the computer store shelves by June. If you weren't among the 10,000 or so official beta testers of this software, you can still get an advanced look through Microsoft's Corporate Preview Program (www.microsoft.com/office/xpcorp/beta.htm). For about \$20, you can order a release kit that can be installed on up to 10 computers. Be fore-



warned, however, that the "preview" software expires on Aug. 31, reverting to a reduced-functionality mode. After that, you'll have to purchase the license for Office XP or reinstall your old version of Office.

If you think this might be an upgrade you can skip for now, you're not alone. The consensus among network administrators in one online poll seems to be that the new features and functionality of Office XP don't warrant an enterprisewide upgrade — especially if you've just made the switch to Office 2000. If your users are still on an older release of Office, however, this new version is worth a look.

There doesn't seem to be any "killer feature" that makes this software a must-have. Mostly, Office XP focuses on an improved user interface, collaboration

tools, Web enablement and increased reliability. There are a few new features of note, such as voice and handwriting recognition, and digital signatures.

I read through the product guide (www.microsoft.com/office/xpguide.htm) to better understand what this upgrade might do for my organization — I'm most interested in the collaboration features. Along with collaborative document review, Office XP offers integration with Microsoft SharePoint Team Services, which sounds like a Web-based, location-independent network for workgroups. (Could it be that Windows for Workgroups has finally joined the Internet Age?)

It's got to be hard for Microsoft, Lotus, Corel or other developers of integrated suites to continue to come up with new features. Most of these packages contain everything but the kitchen sink. What's more, the average person rarely uses some of the more obscure and complex features. Microsoft seems to be on the right track, though, with making its already abundant list of features easier to use.

For instance, the Office XP applications have something called Smart Tags that are shared across applications. Smart Tag buttons appear when users need them and give users options for changing a given action or error. For example, you could use a Smart Tag to override Word's autocorrect option.

Now I like when Word stops me from typing something stupid, like a misspelled word. But sometimes I actually intend to type a word or acronym, and Word "corrects" it for me, whether I want it to or not. Turning off the autocorrect feature would disable this function completely, even though I want it to be there most of the time. Using Word 2002 in Office XP, I can set a

Smart Tag to quickly disable autocorrect for just one instance. Nice feature, but is it worth upgrading for?

If you plan a mass upgrade, be sure your users have upgraded to Windows 98, NT, 2000 or ME. Office XP won't work with Windows 95. Clear off some disk space, too. Office XP needs 210M bytes of space. Microsoft saves you some disk space, though, by not installing a bunch of graphics files and templates that you can download from the Web when you need them.

I suspect the "feature" Microsoft is going to hear the most complaints about is the software activation process. To reduce the likelihood of software piracy, Microsoft requires that Office XP contact the mother-ship by going online and giving your product ID code to register the software. You can install Office on at most two machines.

If your PC crashes and you must completely reinstall the software, you'll need to call Microsoft to receive a code to do another installation.

The word I'm hearing is that most network administrators are content with Office 2000. With Microsoft still developing its .Net strategy, few big organizations will want to move to Office XP when there could be another new, integrated application (such as Netdocs) around the corner in 2002. Still, if your company bypassed the Office 2000 upgrade, or if you need extensive collaboration tools, then give Office XP a test-drive this summer.

Musthaler is vice president of Currid & Company, a Houston technology consulting firm. She can be reached at linda@currid.com.

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Which standard is better for teleworkers: Wi-Fi or HomeRF?

Competing wireless groups battle for control of the small office/home office.

Wi-Fi

BY DENNIS EATON

The Wireless Fidelity standard is the only logical choice for today's teleworkers. Wi-Fi is the seal of approval for interoperable IEEE 802.11b-based products and has long been the industry standard for high-speed wireless LANs in the enterprise environment. Its appeal lies in its true Ethernet speeds, robust performance and scalability to large numbers of users.

Millions of Wi-Fi PC cards and access points have been deployed throughout work environments ranging from small businesses to large companies. Wi-Fi is also being deployed in public places such as airports, hotels and restaurants. As

its popularity has exploded, the price of Wi-Fi-based equipment has significantly come down, and Wi-Fi is now set to become the dominant wireless LAN technology in the home.

Wireless networking is ideal for today's workers on the go. It provides untethered access to all the utility and convenience that a high-speed network offers as you move to different locations. For teleworkers using Wi-Fi technology, movement between the office, airport and home is effortless because the same technology is used everywhere. Just bring the computer home, turn it on and connect to the wireless LAN. There's no messing around with a second PC card or Universal Serial Bus adapter, and

all the software and hardware on the computer is the same. With laptop manufacturers such as Acer, Apple, Dell, IBM and Toshiba embedding Wi-Fi technology in their machines, using HomeRF at home makes even less sense. Currently no laptop makers embed HomeRF in their products.

So what would be the motivation for using HomeRF? It can't be performance. HomeRF's data rate is limited to 1.6M bit/sec, compared with 11M bit/sec for Wi-Fi. At these speeds Wi-Fi's range is more than 30% greater than HomeRF's. It can't be cost, either. You can buy a Wi-Fi PC card for less than \$100 and a Wi-Fi access point suitable for home or small-office use for less than \$200. Both cost less than their HomeRF counterparts. Perhaps this is why Wi-Fi is outselling HomeRF by more than 3-to-1 in the retail channel based on a recent PC Data study.

More than 90 Wi-Fi products have been certified (see www.wi-fi.org/certified_products.asp) and several more are added each week. The Wi-Fi product portfolio covers a range of products with features tailored to the needs of different customers. There is a Wi-Fi product suited for every application, from the firm to the home user. Of the five available HomeRF products, most support Internet connection sharing between a maximum of 10 computers.

There is no reason for teleworkers to use any wireless LAN technology other than Wi-Fi. Wi-Fi provides greater performance at a lower cost and is the only wireless LAN technology that will let you seamlessly roam from work to home and to public places.

Eaton is strategic marketing manager for Intersil and a board member for the Wireless Ethernet Compatibility Alliance. He can be reached at deaton@intersil.com.

HomeRF

BY WAYNE CASWELL

Although originally designed for home networks, HomeRF is the best choice for teleworkers because working from home or on the road introduces network requirements that enterprise wireless LANs still can't address. IEEE 802.11 variants, such as Wireless Fidelity (Wi-Fi), fail to provide toll-quality voice services and compare poorly in such aspects as power consumption, reliability and support for high-network-density environments such as apartment buildings.

HomeRF is fast. Products hitting the market this year will have a 10M bit/sec peak data rate and sufficient range for most residential applications, even in the presence of interference from microwave ovens, cordless phones and Bluetooth devices. The data rates for the new products will back off to 5M bit/sec or slower if necessary to extend the range or to operate with older HomeRF products. By next year, HomeRF proponents expect to achieve a data rate of 20M bit/sec or faster with full backward compatibility.

Because HomeRF was originally designed for home consumers, certified HomeRF products are generally simpler, more secure, more reliable and more affordable than Wi-Fi products. For example, Proxim's Symphony-HRF products make it easy to move between offices and homes — or between wired Ethernet in the home office and wireless HomeRF on the sofa, kitchen table or patio without changing network or Internet settings.

HomeRF also enables low-cost roaming for access to wireless networks in public places such as coffee shops, libraries and shopping malls. Due to its frequency-hopping technology, HomeRF offers superior scalability in larger institutions, with support for up to 15 overlapping networks compared with three for Wi-Fi. Frequency hopping also makes HomeRF less susceptible to interference and more secure than Wi-Fi.

Although Wi-Fi has gained momentum in retail channels, most deployments have been in industry vertical applications, corporate offices and schools. HomeRF continues to dominate the home wireless network market and remains the choice of broadband carriers for their integrated services. That's because HomeRF integrates voice, data and entertainment — including cordless phones, prioritized media streaming, wireless speakers and Dolby Surround. HomeRF is included in the leading cable modems, the top TV set-top boxes and a growing number of home gateways, music and TV devices, and information appliances.

HomeRF has quality-of-service support for streaming media and is the only wireless LAN to integrate voice. And as a 2.4-GHz extension of the European digitally enhanced cordless telephony standard, HomeRF has a chance to become the worldwide standard for cordless phones.

Broadband, not enterprise IT, will define home-network standards important to teleworkers and drive the market from early adopter to mainstream.

Caswell is communications chairman for the HomeRF Working Group. He can be reached at wayne.caswell@icm.siemens.com.

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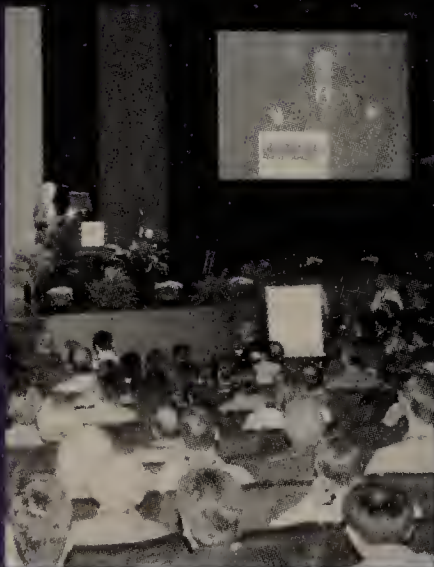
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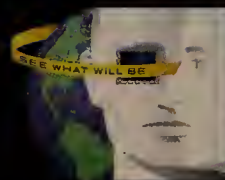
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Bulking up your DESKTOP TOOLBOX

Best-of-breed point products emerge, but integration with desktop management suites remains tricky.

BY PAUL FERRILL

When it comes to justifying the price of a desktop management suite, it doesn't take that many workstations before the benefits start to outweigh the costs. But as this field of network management evolves, users are becoming more demanding in what they want from their desktop toolboxes.

In the 15 months since we last tested these products, we've seen a bit of a shakeout in the market, with products from McAfee and Seagate Software going the way of the Edsel while other new products or releases of existing products have moved away from the "complete suite" to offer best-of-breed tools in specific desktop management areas.

Also putting pressure on vendors in the desktop management arena in the past year has been a growing need to manage mobile users with laptops and wireless devices. Some of the products on the market — such as Novell's ZENworks, which addresses the disconnected/mobile user — have made strides on this front, but this area still stands open for improvement.

A number of companies have emerged to provide niche products that do a specific task very well. For example, TS.Census from Tally Systems does an extremely thorough job of software and hardware inventory. Altiris eXpress does a great job managing new deployments. Novadigm specializes in software distribution and desktop management through its Enterprise Desktop Manager. The problem customers face when using these best-of-breed point products is how to integrate them into a broader framework should they need additional capabilities.

Topping the list of most widely used desktop management fea-



TOM NORTON

tures is software distribution. Volkswagen Credit, a financing agency in Chicago, switched from Microsoft Systems Management Server (SMS) Version 1.2 to Intel's LANDesk for one primary reason: It helped the company get its application distributed in roughly a quarter of the time that it took with SMS.

"We were disappointed in the amount of time that it took SMS to accomplish the distribution of a 10M-byte file. When we went to Intel LANDesk, we cut our time down from eight hours to a little over two hours," says Scott Fuzer, network services manager at Volkswagen Credit.

Asset management — meaning hardware and software inventory — is another key capability for many companies. It has become even more important as companies deploy Windows 2000 across their networks. Key issues include determining how many machines have enough CPU speed, disk space and memory to upgrade directly to Win 2000 Professional.

Accurate inventory records are also important for companies that lease their equipment. A common problem for large organizations with a heavy commitment to leasing is overpayment. One Novell customer, ON Semiconductor, a Motorola spinoff in Phoenix, was able to reduce its annual lease budget by \$750,000 by comparing inventory records, complete with serial numbers, against lease billing information.

On the software inventory side, more companies are beginning to show an interest in determining how many people are actually using a particular application as they look to trim their software budgets. A more accurate picture of how many users are actually using a particular application at any one time can help managers

budget for future software buys.

Remote control has become increasingly important as companies consolidate their administration capabilities. This feature — which ships with most desktop management suites on the market — is also being used as a substitute for traditional remote access services by using the Internet instead of a dial-up connection.

For example, Mauro Perez, vice president of operations for consulting firm Waypoint Solutions, says his company uses PC-Duo from Vector Networks to significantly cut down the time required to help manage a custom application at a customer site.

New capabilities

While most of the products available on the market do an adequate job of dealing with the problems at hand, there are areas that each can improve upon.

Topping the list of many IT directors is how to deal with mobile users. Alongside the mobile problem is the issue of new small-footprint devices, from PDAs to smart phones. Many companies are starting to ask questions about how to deal with PDAs and the like but haven't started implementing anything.

Novell's ZENworks does the best job of handling disconnected users from a laptop perspective (see review, below).

Web-based management tools make it possible to perform administrative tasks from any system on the network. Intel was one of the first to provide this capability in its LANDesk product, and other vendors are beginning to follow suit.

While network managers like this increased accessibility, they don't want to sacrifice any of

the features of their dedicated consoles to get it. Vendors, such as Intel, provide a Web interface to their management consoles, but they look different from what you get in the dedicated consoles.

Moving forward

Tighter integration will be a driving force for new offerings. That includes integration with outside applications such as financial packages and enterprise business systems to enhance the ability to track hardware and software inventory into enterprise accounting systems.

Increased intelligence in the hardware and software inventory area is making it possible to predict hardware failures and software usage thresholds based on trends across the enterprise. This will give administrators the tools needed to do their job better. New trends like Microsoft's .Net platform and its new usage-based software pricing models along with companies tapping into application service providers will be new challenges for system and network administrators.

As is the case with just about any network management task, having the right tools really does make the job easier. While the products available do help tremendously in terms of cost and time savings, they must continue to evolve to meet the challenges of an even more mobile workforce.

Ferrill is a freelance writer based in Lancaster, Calif. He has a master's degree in electrical engineering and has been using and writing about network management software for over 10 years. He can be reached at paul.ferrill@verizon.net.

Desktop management tool time

Intel's LANDesk stays on top in our annual desktop management suite showdown.

BY PAUL FERRILL

Reducing the cost of doing business is the name of the game in this ever-tightening economic climate. One pressing question many IS professionals ask is how to reduce the cost of managing thousands of desktop machines without adversely impacting company productivity.

It's all in the numbers. Effective desktop management takes place when the right information is available to guide strategic decisions. For example, the only way to determine the true cost of migrating to Windows 2000 is to get an accurate hardware inventory that shows how many machines have enough CPU speed, memory and disk space to accommodate the new operating

system. Another example is how a good software-monitoring tool will provide the information necessary to determine how many Office 2000 licenses you need across your network.

We recently tested seven desktop management products to see which offers the best overall tool kit for deploying and controlling desktop systems in an enterprise network. The suites we tested were Altiris' eXpress 5, Intel's LANDesk 6.4 Management Suite, Microsoft's Systems Management Server 2.0 Service Pack 3 and Novell's ZENworks 3.0. We also tested combined-product entries from three companies, including Cognet's Cognet 3.5 and myITware 4.0, Tally Systems' TS.Census 1.2 and TS.Ready 4.0, and Vector Networks' LANutil32 and PC-Duo.

We deemed LANDesk to be, once again, the best overall choice and the Network World Blue Ribbon winner (www.nwfusion.com, DocFinder:

LANDesk Management Suite 6.4

Intel's LANDesk Management Suite 6.4 picks up the Network World Blue Ribbon award this year for its all-around strong set of desktop management tools, Web-based user interface and extensive client support.



3561). LANDesk includes things not found in its competitors' offerings, such as Norton Antivirus and support for Linux machines. ZENworks for Desktops is not far behind the leader in all categories we assessed and represents the best solution for current Novell shops.

If you want to take a best-of-breed approach to building your toolbox, you may wind up with a set of tools that don't work well together. While TS.Census is without question the best inventory product we tested, it falls short in areas such as software metering, which it does not support.

If you're looking for a tool to help roll out

See **Desktop**, page 52



AT 178 MPPS, WHO CARES ABOUT AERODYNAMICS?

Scaling up to 178,000,000 packets per second of throughput and 480 Gigabits per second of total switching capacity, the BigIron family of Layer 3 switches leaves competitors floundering in its wash. This isn't just a revolution in speed.

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Desktop,

Continued from page 50

new desktops or have a need to frequently restore an original copy of your operating system, you'll want to take a serious look at Altiris' eXpress. It offers the best-integrated disk-image management features of the group. In terms of functionality, Microsoft's SMS remains about the same as the last time we looked at it. Even though the latest service pack, SP3, fixes a number of bugs, it doesn't really offer any significant new capabilities.

Vector Networks LANUtil32 is a well-rounded product that covers all of our test areas with the exception of software license metering. The two products from Cognet suffer from poor integration at this point, but perform well in their own right and offer some features — such as the software application profiling — not found in any of the other products we tested.

Desktop configuration, ongoing mgmt. utilities

One challenge for desktop managers is maintaining control over the physical machines on their networks. That includes things such as preventing registry corruption, addressing deleted system files and maintaining a standard configuration across the corporation.

The first step in managing a large number of desktop computers is to establish a baseline

configuration for each machine. In the

case of new computers, it's fairly easy to deploy a standard image with the appropriate software loaded and proper network settings in place. EXpress and ZENworks provide system-imaging tools to make this task even easier. They use a similar approach to managing and deploying images. Functional steps include the initial image generation, cataloging of different images, and the mechanics of conditionally deploying an image to a specific workstation.

Novell's ZENworks also provides the most comprehensive desktop configuration tools of all the products we tested. ZENworks' policy feature lets an administrator centrally create and manage Windows 95, 98, NT and 2000 policies and user profiles. Policies make it possible to restrict access to control panels and network settings. The goal is to take away any chance of users changing things that might disable or degrade their desktop systems. ZENworks also monitors and fixes mistakes made in registry or system files. SMS provides a similar capability for propagating user profiles and logon restrictions although ZENworks was easier to administer.

MyITware provides the ability to enforce profile restrictions on an individual basis. Specific profile options include setting application restrictions, defining access to Windows features such as the run option on the start menu, and limiting access to the Windows control panel. Another validation option keeps users from bypassing the network logon process by clicking the cancel button or escape key. A user settings Wizard makes it possible to change proper-

ties for multiple users at the same time.

Another angle to the configuration management problem is integration with third-party help desk products. Intel offers its Desktop Integrator Technology, which links LANDesk with help desk consoles from Remedy and royalblue.

Hardware and software inventory

All the products we tested provided some level of hardware and software inventory. The key factors we looked at were accuracy and thoroughness.

TS.Census is by far the most thorough inventory program tested. TS.Census picks up desktop details such as the number of memory slots used and those still available. That can come in handy if your company is looking to upgrade to Win 2000 and you need to know how many workstations have enough memory or available spare memory slots to accommodate the additional memory requirements.

TS.Census also leads the pack for software inventory. Its extensive recognition database is updated every 30 days and is accessible via Tally Systems' Web site. LANDesk and ZENworks come in a close second on the software recognition front. These products do a good job recognizing most standard software applications, such as the standard Microsoft productivity tools, Internet Explorer, Netscape Navigator and others, including shareware products such as WinZIP.

Some of the products, such as LANUtil32, reported slightly different numbers for things

See **Desktop**, page 54

NetResults



LANDesk Management Suite 6.4

RATING: 3.53 **COMPANY:** Intel, www.intel.com
COST: \$50 per node for the basic LANDesk client, \$30 per additional client for targeted multicasting. **PROS:** Well-rounded product; best client support; strong Web-based management console. **CONS:** Some of the user-interface features are confusing.

ZENworks 3.0

RATING: 3.48 **COMPANY:** Novell, www.novell.com **COST:** \$59 per client. **PROS:** Well-rounded suite of utilities; unique policy management and application healing capabilities. **CONS:** No Web-based management; tied to the Novell client.

Systems Management Server 2.0, Service Pack 3

RATING: 3.28 **COMPANY:** Microsoft, www.microsoft.com **COST:** \$1,779 for server and 25 client-access licenses. **PROS:** Easy user interface; robust architecture for large installations; integration with Microsoft operating systems. **CONS:** Microsoft-centric; software inventory limited; requires SQL Server in addition to basic product.

TS.Census 1.2 and TS.Ready 4.0

RATING: 3.10 **COMPANY:** Tally Systems, www.tallysystems.com **COST:** TS.Census: \$21 per client. TS.Ready: \$110 per client. **PROS:** Very strong inventory and reporting features. **CONS:** Multiple clients required for the two products; no software metering.

LANUtil32 Suite 5.02 and PC-Duo 6.0

RATING: 2.95 **COMPANY:** Vector Networks, www.vectornetworks.com **COST:** LANUtil32: \$52 per client. PC-Duo: \$34 per client. **PROS:** Easy to install; clean user interface. **CONS:** Inaccurate hardware inventory in some cases; multiple clients required to support all features.

Cognet 3.5 and myITware 4.0

RATING: 2.78 **COMPANY:** Cognet, www.cognet.com **COST:** \$99 per node plus \$12,500 for the server. **PROS:** Nice macro language for software distribution with predefined functions; software-profiling capability is unique. **CONS:** No software metering; multiple clients required; poor integration between the two products.

EXpress 5

RATING: 2.75 **COMPANY:** Altiris, www.altiris.com **COST:** \$37 per client. **PROS:** Does the job of deploying new desktops and restoring a copy of a disk image really well. **CONS:** No software metering.

	Desktop configuration and ongoing management utilities 20%	Hardware and software inventory 15%	Software distribution and application healing 15%	Reporting 10%	License metering 10%	Remote control 10%	Client support 10%	Installation 5%	Documentation 5%	TOTAL SCORE
LANDesk Management Suite 6.4	3.0	3.5	4.0	3.0	4.0	3.5	4.0	3.5	3.5	3.53
ZENworks	4.0	3.5	4.0	3.0	4.0	3.0	3.0	2.5	2.5	3.48
Systems Management Server	3.5	3.0	3.5	3.0	3.5	3.5	3.0	2.5	3.5	3.28
TS.Census 1.2/TS.Ready 4.0	3.0	4.5	3.0	4.5	1.0	3.0	2.5	2.5	3.0	3.10
LANUtil32 Suite 5.02 and PC-Duo 6.0	3.0	3.0	3.0	3.0	2.0	4.0	2.5	3.0	3.0	2.95
Cognet 3.5/myITware 4.0	3.5	3.0	3.0	3.0	1.0	3.0	2.5	2.5	2.0	2.78
eXpress 5	3.5	3.0	3.0	3.0	1.0	1.0	3.0	4.0	3.0	2.75

Individual category scores are based on a scale of 1 to 10. Percentages are the weight given each category in determining the total score. Scoring key: 5: Exceptional showing in this category. Defines the standard of excellence; 4: Very good showing. Although there may be room for improvement, this product was much better than average; 3: Average showing in this category. Product was neither especially good nor exceptionally bad; 2: Below average. Lacked some features or lower performance than other products, or than was expected; 1: Considerably subpar, or lacking features being reviewed.

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Desktop,
Continued from page 52

like available memory, depending on the operating system installed. For instance, LANUtil32 told us that one of our Compaq iPaq machines running Windows 98 had 126M bytes when it actually had 128M bytes of memory. An identical machine running Win 2000 Professional correctly reported 128M bytes.

As we found in last year's test, SMS suffers from recognition problems. It categorizes software into known items by manufacturer and unknown files. By default, it will gather all .exe files and attempt to identify them. While it did a satisfactory job overall it still didn't recognize DOS executable files like chkdisk.exe and cmm386.exe.

Software distribution and application healing

All the products we tested make it possible to distribute software to some extent.

They all use the "before" and "after" snapshot approach to building a distribution package. The only hitch to this method is you must build a snapshot on each type of system, based on operating system, that you wish to make a distribution. Most of the products support some type of variable substitution, allowing you to customize each distribution based on things such as user name. MyITware provides a macro language and predefined actions that simplify the process of customizing distribution packages.

LANDesk, SMS and ZENworks provide features that ease the network effect of distributing software to a large number of clients. All three products use a tiered distribution scheme in which a master server distributes a single copy of an application to a second level of distribution servers. From there a smaller subset of clients will be serviced when the application installation takes place.

Several of the products, including LANDesk, ZENworks, TSReady and eXpress, also use IP multicasting to accomplish software distribu-

tion with a minimal effect on network bandwidth consumption.

ZENworks also has a feature for increasing the availability of software run over the network. ZENworks makes it possible to build in fault tolerance and load balancing for all applications using the ZENworks Network Application Launcher (NAL). It will also launch applications from the server nearest the user to help reduce network traffic. For mobile users, the NAL feature will install a local copy onto a user's hard drive and make it possible to repair a broken application using a CD-ROM while disconnected from the corporate network.

In addition to basic distribution performance, we also gauged how each product can heal a broken application. While any application that supports Microsoft Systems Installer (MSI) doesn't need this type of functionality, it is still useful for a large number of applications. Only LANDesk and ZENworks provide true application-healing capability for non-MSI applications that will fix virtually any application-corruption problem. MyITware will replace any missing files from a distribution each time their scheduler runs but can't handle the case when a file is simply damaged.

Reporting

Almost every product tested includes a basic report-generation facility. Along with that basic capability comes a set of default or template reports, with none of the products really differentiating itself from the pack.

In terms of the sheer number of canned reports, TS.Census wins out. It includes component, file not identified, product and workstation reports. Within each type of report an administrator can get breakdown, trend, catalog, history, detail and upgrade reports. TS.Census also supports all types of graphical formats, including pie chart, line and bar graphs. Default reports can be modified and saved to a personal reports container for later use.

We also evaluated each product's ability to

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produce Web-based reports. TS.Census provides an add-on called TS.Webport that can export reports to the Web on a scheduled basis. LANDesk also supports reporting to the Web and custom queries.

Another key area for reporting is the ability to build user-defined queries. TS.Census again leads the pack with an easy-to-use query tool. It has all the features you would expect from a database query tool, including the ability to view the results. SMS provides a query tool, but it requires that you know SQL Server. ZENworks inventory database can be accessed from an external Open Database Connectivity-compliant database.

License metering

Two of the products — eXpress and TS.Census/TSReady — do not provide software-metering capabilities. MyITware has only a software-usage capability that can give some insight into how a particular application is being used in terms of numbers of users and amount of time. LANUtil32 provides only a license grouping feature for controlling which workstations can install and run specific applications.

On the other hand, LANDesk, SMS and ZENworks feature license pooling and will either deny, monitor or use a queue system to allocate individual licenses to users.

Each also lets you specifically grant full access to individual users. ZENworks does the best job of integrating with an underlying licensing system through the NetWare License Management facility.

Remote control

One of the biggest factors in judging the quality of a remote control product is speed. If the remote control function runs slowly, it can hamper a technician's efficiency in getting the remote PC fixed. Vector Networks' PC Duo offers the best performance of all the remote control features tested.

There is also the question of how much control an administrator can take over a remote machine. All of the products except for eXpress let administrators determine what role users get to play in a remote control situation. As an administrator you can give a user no choice in the matter or full choice, in which the user must give permission for you to carry out repair tasks.

Some of the products, such as ZENworks, let administrators lock out remote users' key-

See **Desktop**, page 56

How we did it

We installed each product's desktop management console and any server software on a Compaq ProLiant 5500R server with dual 550-MHz Xeon processors and 512M bytes of memory. Our network consisted of three servers running either Windows NT 4.0 SP 6a, Windows 2000 Advanced Server Service Pack 1 or Novell NetWare 5.1 Service Pack 2a. The client machines included five Compaq iPaq desktops, two of which were legacy-free, meaning they have only Universal Serial Bus, VGA monitor and audio connectors. We used a Cybex/Avocent Auto-view 400 and a SwitchView OSD KVM switch to connect the desktop clients and servers to two sets of keyboards, monitors and mice. Our network used a single Linksys EtherFast 10/100 12-port switch to connect the workstations and servers.

To test the components of each suite, we ran

hardware and software inventories of each client and used available reporting tools to examine the results. To test the software distribution tools, we distributed a copy of the WinZIP file compression tool to each of our clients. Next, we looked at how each product managed a client's desktop configuration by attempting to change Windows registry entries and distribute system policy information. We then evaluated each product's ability to automatically heal broken applications by deleting a key .DLL from a Windows application and then observing how the management application handles the situation. We also evaluated each product's Web-based management capabilities, looked at how each product handled license metering by first tracking and then exceeding a license threshold and finally assessed the remote control features of each product.



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Desktop,
Continued from page 54

boards and mice while remote control sessions are taking place. One plus for LANDesk is its ability to launch a remote control session from its Web management console.

Client support

Intel's LANDesk is by far the most versatile when it comes to client support. The list of supported clients includes all versions of Windows, OS/2, Macintosh and Linux.

The ZENworks client is part of the standard Novell NetWare client. One dif-

ference between ZENworks 3 and the previous version is that it does not require you to have a NetWare server on your network. However, you do have to be running a version of eDirectory formerly known as Novell Directory Services on either a NetWare or NT server.

One dig on several products was the

necessity of loading multiple client programs. Currently, Cognet, Tally Systems and Vector Networks require you to load more than one client program to cover all the areas that we wanted to test.

Installation and documentation

No product is perfect. One quick way to prove this is to install it. Two of the companies in this comparison, Tally Systems and Cognet, include installation support in the basic cost of the product. We allowed both companies to install their products on our test network and provide the same type of support that they would normally give to their customers. Our judgment of these two products was based on observing the installation process and then participating in some of the initial configuration and setup.

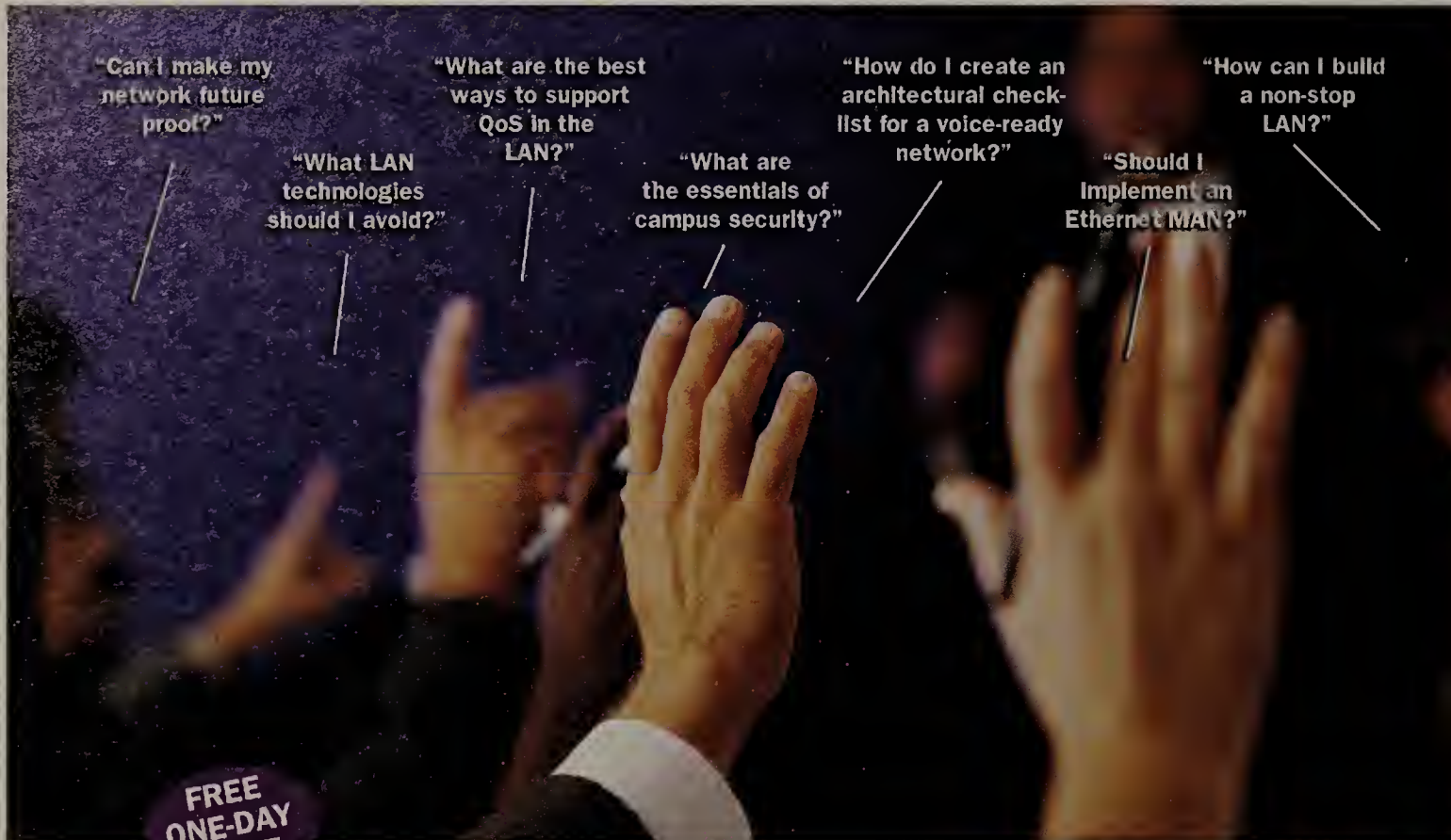
The Altiris product was the easiest to install and configure. One big plus for Altiris is that Compaq now ships Altiris client software preinstalled on many of its desktop systems. That made it possible for us to start using the software after installing only the Altiris console program. Altiris gets another star for the minimal amount of configuration necessary to enable productivity. Unlike many of the other products, the Altiris program will install and run without a lot of extra care and feeding.

SMS and ZENworks were the most difficult to configure. Both products require you to manually enable features that are enabled in other products by default. This is a design feature and is based on the concept that in large networks you want to explicitly turn specific capabilities on and not have them take down your whole production network.

Best documentation goes to TS. Census, as the user's guide explains the options in excruciating detail. The SMS manual provides a good set of examples and is well-indexed. Novell provides all of its documentation in electronic format. Intel's manuals contain an ample supply of screen shots and are also indexed well.

In the final analysis, there remains no be-all and end-all in the desktop management market. Once again, our recommendation is to understand the problem you're trying to solve and then choose the product that fits that criterion the best. However, based on the criteria we set for this evaluation, Intel's LANDesk tops our list, while Novell ZENworks should be on the short list in Novell shops.

Ferrill is a freelance writer in Lancaster, Calif. He has a master's degree in electrical engineering and has been using and writing about network management software for more than 10 years. He can be reached at paul.ferrill@verizon.net.



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What's your tool of choice for diagnosing network connectivity problems? When you need to measure network utilization for several segments and WAN links to plan for future bandwidth additions, what's the most accurate way to obtain the statistics?

If you answered "protocol analyzer" to all three questions, you're in good company. Network administrators count on protocol analyzers the same way doctors rely on stethoscopes and carpenters depend on nail guns.

Agilent Technologies, a Hewlett-Packard spin-off, claims its portable, Windows-based Agilent Advisor PC

Analyze this

Agilent Advisor can connect to any part of your network and has an encyclopedic ability to decode network traffic.

BY BARRY NANCE,
NETWORK WORLD GLOBAL TEST ALLIANCE

which Agilent terms a mainframe, has a 300-MHz AMD K6 CPU, 128M bytes of RAM, and a 2.5G-byte hard drive, but no built-in CD-ROM drive. The

committed information rate. The result is an accurate and detailed look at frame relay usage that, unlike the measurements by software products

those needing point-to-point filtering of specific traffic), an IP device discovery test, NetWare-specific tests (for problems such as a client that can't find the nearest server), address resolution tests, media access control-layer node tests, tests for gathering statistics and a test for generating traffic to produce a known load on the network. The ability to send SNMP alerts to a network management product is a feature we would've liked included in the Advisor.

Software-only version

We also tested the software-only, less-expensive version of Agilent Advisor. Naturally, it lacks the Advisor PC's plethora of connectivity options and the data acquisition undercradle for assuring the capture of each network message, but the software version sports the full protocol decode and analysis ability we found on the Advisor PC. Installation on an 850-MHz notebook was child's play. We also used Agilent's \$695 reporting option to create useful and effective baseline reports, as well as capacity planning analyses. Moreover, the software didn't miss a frame when we flooded it with streaming video over Fast Ethernet. The Agilent Advisor documentation is comprehensive and easy to follow.

The different Advisor configurations cover virtually every type of network and protocol you'd need to diagnose or measure, and they work well. If you don't already have a protocol analyzer, or are thinking about adding some, we recommend you look closely at the Agilent Advisor.

Nance, a software developer and consultant for 29 years, is the author of Introduction to Networking, 4th Edition and Client/Server LAN Programming. He can be reached at barryn@erols.com.

NetResults

Agilent Advisor 11.7

RATING: 4.0 **COMPANY:** Agilent Technologies, (800) 452-4844, Palo Alto, www.onenetworks.comms.agilent.com/internetadvisor. **COST:** Starts at \$13,500 (\$4,995 for software-only version). **PROS:** Useful protocol decodes and traffic statistics; intuitive and sophisticated user interface; range of connectivity options. **CONS:** Doesn't send SNMP alerts; no CD-ROM drive.

Scoring key: 5: **Exceptional showing** in this category. Defines the standard of excellence; 4: **Very good showing.** Although there may be room for improvement, this product was much better than average; 3: **Average showing** in this category. Product was neither especially good nor exceptionally bad; 2: **Below average.** Lacked some features or lower performance than other products, or than was expected; 1: **Considerably subpar**, or lacking features being reviewed.

ScoreCard

	Accuracy 20%	Protocols 20%	Reports 20%	Ease of use 20%	Installation 10%	Documentation 10%	Total score
Agilent Advisor 11.7	4	4	4	4	4	4	4.0

Individual category scores are based on a scale of 1 to 5. Percentages are the weight given each category in determining the total score.

can analyze virtually any kind of traffic and can connect to any type of network segment. The company says the Advisor can capture every frame from even the fastest, busiest network and can even monitor WAN links for service-level agreement compliance.

Agilent's PC device pleasantly surprised us with the number of protocols it could decode, the ease with which we could connect it to various points in our network, and its sophisticated engineering design. The software's Multiple Document Interface-like interface even let us run several network tests concurrently, despite Windows 98's primitive multitasking environment. The Agilent Advisor competes favorably with protocol analyzers such as Network Associates' hardware-version Sniffer or Wandel & Goltermann's hardware analyzers.

Agilent's device, formerly called Internet Advisor, is a laptop-sized (not notebook-sized) PC constructed to accept a data acquisition undercradle for capturing and buffering network messages. The undercradle contains its own CPU and memory, and a variety of network connectors. The PC,

Fast Ethernet undercradle we tested has connectors for 100Base-TX/10Base-T (hub and switch), Ethernet attachment unit interface and Fast Ethernet media independent interface. The PC has built-in V-series interfaces (RS-232C/V.24, RS-449/422/423, V.10/V.11 and V.35) and a slot for ISDN Basic Rate Interface and Primary Rate Interface, T-1, E-1, E-3 and Synchronous Transport Module-I/OC-3c slide-in modules. Agilent also offers undercradles for Ethernet, switched Ethernet, Gigabit Ethernet, FDDI, token ring and STM-4c/OC-12c (622M bit/sec ATM) as well as analog Foreign Exchange Office and E&M interfaces for voice-quality testing.

Connecting the Advisor alternately to our Fast Ethernet LAN, a T-1 line and a frame relay DSU/CSU port was simple. The software's frame relay analyzer separately decodes traffic for all Data Link Connection Identifiers, identifies top talkers, displays the distribution of protocols flowing through the link and, using Frame Relay Forum specification FRF.13, shows traffic statistics such as the number of packets bursting above the

offered by DSU/CSU vendors, doesn't depend on the brand of DSU/CSU you have. The frame relay analyzer module also successfully decoded traffic in our voice over frame relay tests.

Agilent says the Advisor can decode more than 400 protocols. It had no trouble with any of the mix of traffic we subjected it to, which included frame relay cells, streaming video, Oracle TNS and Sybase/Microsoft TDS database transactions, AppleTalk, High-Level Data Link Control, Network Information Services, NetWare Core Protocol, Server Message Block, a range of Cisco discovery and routing protocols, and even Multicast Open Shortest Path First messages.

The Advisor performed reliably and accurately in most situations (see "How we did it," www.nwfusion.com, DocFinder: 3735). It became unresponsive in the Windows 98 environment only once during one of our long-running tests.

Impressively, the intuitive Windows-based user interface let us run several tests concurrently. Among these are an expert mode test for troubleshooting general network problems (such as



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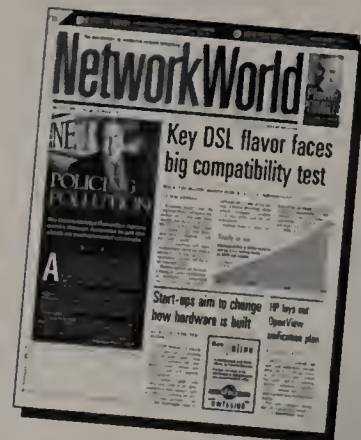


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Trying to get a grip on the hundreds of mundane tasks involved in running a large Windows NT network in today's fast-paced environment can be overwhelming. When the boss is screaming for a last-minute report on Napster network utilization, it can be almost impossible to remember the dirty details of daily life. Backups, disk maintenance and log-file analysis can slip through the cracks. It's enough to make you wish you had a personal assistant. Don't give up — relief is right on schedule. OpalisRobot 3.6 can provide you with the extra set of hands you've been dreaming about.

The key to OpalisRobot's success lies in its event-driven scheduling abilities. Traditional schedulers are limited to kicking off applications based on date/time settings. OpalisRobot adds triggers that fire events when files or folders change, when data queries return the proper answer or when a task finishes. The ability to define the completion of a task as an event is particularly useful, as it lets you chain tasks together.

OpalisRobot also allows for the manual triggering of an event, a feature we found handy in our tests. It's not always clear if an event will perform as planned, so being able to immediately test your design is important. Once you're sure the event is configured correctly, it's simple to link it to a date/time-based trigger.

The heart of OpalisRobot is a powerful scheduling engine, similar to cron, a Unix utility that's been around for years. But while cron is a command-line, complicated application, OpalisRobot is an easy-to-use graphical tool that beats cron and Microsoft's scheduler hands-down.

OpalisRobot provides an extensive library of more than 50 predefined tasks that cover file and directory modifications, backups, process alerts and Internet applications. Custom task definition is provided for but it's unlikely the average user will do it. We were particularly impressed with the Internet application monitoring abilities of OpalisRobot despite a slightly confusing setup process.

Object oriented

OpalisRobot gives users two Internet objects to choose from: Test Internet Application and Monitor Internet Application. There are only slight differences between the two. The documentation states: "The only difference is that the Monitor object has an additional frequency field that allows you to select how frequently the test will be done. The other difference is the Test object features a

Right on schedule

OpalisRobot 3.6 provides NT administrators with an excellent event-scheduling tool.

BY BOB CURRIER, NETWORK WORLD
GLOBAL TEST ALLIANCE

NetResults

OpalisRobot 3.6

RATING: 3.6 **COMPANY:** Opalis Software, (888) 672-5471, www.opalis.com **COST:** \$779 for the first server, \$5,280 for a 10-server license. **PROS:** Easy to install; ample library of predefined events; great documentation. **CONS:** Confusing Internet application settings.

ScoreCard

	Features 40%	Ease of use 40%	Installation 10%	Documentation 10%	Total score
OpalisRobot 3.6	4	2.5	5	5	3.6

Individual category scores are based on a scale of 1 to 5. Percentages are the weight given each category in determining the total score.

Scoring key: 5: **Exceptional showing** in this category. Defines the standard of excellence; 4: **Very good showing**. Although there may be room for improvement, this product was much better than average; 3: **Average showing** in this category. Product was neither especially good nor exceptionally bad; 2: **Below average**. Lacked some features or lower performance than other products, or than was expected; 1: **Considerably subpar**, or lacking features being reviewed.

Custom application type that lets you test any Internet application, even if it's not included in the predefined tests. We found these slight differences confusing — the frequency field and Custom application selections could have been made from the same configuration screen.

Despite our initial confusion in selecting the proper object, we found that monitoring 'Net applications was easy, giving us useful results. We monitored three Web servers, our enterprise network DNS server and our mail host (see "How we did it," www.nwfusion.com, DocFinder: 3721).

Using the graphical interface of OpalisRobot we defined an event that launched every 15 minutes. Once the event was defined, we built five Monitor Internet Application objects and configured them to monitor our Web, DNS and mail servers. OpalisRobot lets users log on to servers that provide FTP or e-mail access and attempt to transfer data or send mail. We found this to be a useful feature. It's possible for a server to respond to generic port tests but not let users log on or transfer data.

Once the objects were built, we linked them with the event trigger by clicking and dragging a link to each

object. OpalisRobot lets one trigger fire multiple events — a handy feature if you need to run many tests at the same time. This is a great example of where OpalisRobot's flexibility puts Microsoft's bundled scheduler to shame. After linking the objects with the trigger, we applied the changes to our configuration. That's it. We let OpalisRobot monitor the servers for several days and it never missed a beat. All failures were immediately written to the log file. We also could have configured OpalisRobot to send a message to a pop-up window or the OpalisRobot client, or do nothing.

Installation and documentation

We installed OpalisRobot 3.6 on two Windows 2000 workstations and an NT server. The installation process was straightforward and we didn't experience any problems. OpalisRobot can be installed three ways: as a client and service; as a client only; or as a remote installation on another NT computer. While the installation options may seem confusing at first, they're actually quite straightforward. If you install OpalisRobot on a Win 2000 or NT workstation, you have the option to install the service — the portion of the program that performs

the monitoring — and the client, the graphical front end to OpalisRobot. Workstations running Windows 95 or 98 support only the client. Remote installation gives administrators the ability to install OpalisRobot on multiple servers by copying files across the network. Don't forget that you'll need administrative rights on the remote servers to do so. Even though the OpalisRobot client supports Windows 95 and 98, the OpalisRobot server requires Win 2000 or NT.

The documentation supplied with OpalisRobot was outstanding. The online help files were all we needed to get started and work our way through any minor issues we encountered. We didn't need to turn to the 106-page user's manual, which is well-written, and contains numerous examples and excellent illustrations.

So if you're strapped for time and find yourself forgetting to take care of day-to-day maintenance tasks, OpalisRobot can give you some relief. While some of OpalisRobot's event timer settings were confusing, we were pleased with the overall performance and usability of the product. OpalisRobot is expensive, although it costs a lot less than the salaries you'll pay your staff to hang around and make certain that time-sensitive tasks are completed. If you manage a large NT network, we recommend adding OpalisRobot 3.6 to your tool kit.

Currier is director of data communications at Duke University in Durham, N.C., and the 1998 Grand Prize winner in the Excellence in Campus Networking competition sponsored by CAUSE, a user group for computer professionals in higher education. He can be reached at robert.currier@duke.edu.



Currier is also a member of the Network World Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.



Management

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Avoid buyer's remorse

Fail to ask the right questions of potential employers, and the job you take could turn out to be a big mistake.

BY SUSAN BREIDENBACH

A new job is like a new relationship: You never know how it's going to work out until you've tried it for a while. And unless you've been a real job-hopper, you don't have a lot of experience choosing a new employer.

Take "Bill," for example. He spent seven years as a network administrator with a large engineering company in the Northeast. He was working his way up the ranks, with his ultimate goal being the MIS director position. However, last summer the company announced it was merging with another firm and moving all operations about 250 miles away.

Bill didn't want to relocate, so his employer offered an attractive incentive bonus if he would stay through the move at the end of 2000. Meanwhile, he started looking at job listings and lined up two interviews.

The first was with an outsourcing company. Bill rejected the job because it involved too much travel. The second was with a small insurance company that had been relying largely on a consulting firm to run its network. After two rounds of interviews, Bill decided to take the job and forfeit his incentive bonus.

With dot-coms crashing and burning, and rumblings of an economic downturn getting louder, it seemed the prudent thing to do. It was also an opportunity to be the biggest IT fish in the pond, albeit a much smaller pond.

Before the first week was out, Bill realized he'd made a mistake. His entire staff — a college student performing desktop support and assorted chores — quit. Bill was told this individual wouldn't be replaced immediately because of a pending merger. Meanwhile, company executives started asking him to empty garbage pails, change light bulbs, do filing, clean the lunchroom and make daily runs to the post office.

When Bill objected, the company chairman replied, "Well, the kid used to do these things, and there's no one else right now." Bill also discovered that the consulting firm he replaced had been a temporary stop-gap. His actual predecessor spent 14 years on the job before leaving abruptly after an altercation with management. Bill started looking for another job.

What can you learn from Bill's experience? Professional recruiters say most job-hunters simply don't do enough due diligence.



Tom Whitley of Management Recruiters says potential employers give you the hard sell, so you need to probe a little to find out about their shortcomings.

"Though the market is down, there is still a lot of competition for good people," says Tom Whitley, president of Management Recruiters of Kannapolis, N.C. "The temptation for the hiring companies to paint a rosy picture is very great, and candidates need to be aware of this."

Len Budd, a recruiter with Guidance Group in Haverhill, Mass., concurs. "Look at the company as if you were buying a stock," he advises. "How well is it doing compared to its competitors? Is it in an industry sector that is doing well? What are the analysts saying about it?"

Such information is fairly easy to come by if the company is public, but may require some creative digging if it is not.

If you proceed to the interview stage, Budd says, don't be afraid to turn the table around and ask aggressive questions. It shows you aren't desperate.

"There are very few people who will blatantly answer questions with a lie, but job candidates often fail to ask the right questions," Whitley says. These include:

- Why is this position vacant?
- What happened to the last person? May I talk to that person?
- May I talk to some of the people I will be working with?
- What is your turnover rate?
- Do you have a written job description, and may I have a copy?
- What is the budget for the network?
- If you tell me a year from now that I've done a great job, what will I have done for you?

You can also sleuth out information about internal politics and potential turf wars by asking about organizational structures:

- What is the exact reporting structure?
- Are there any dotted-line reporting relationships?
- Are there other groups in the company that perform the same functions or related ones?

If you can't get answers to these questions, red flags should go up. Be wary if the company seems determined to only interview you after-hours and prevent any contact with rank-and-file employees.

Bill says if he had it to do over again, he would request a third interview in which he would be asking most of the questions.

Moreover, he would get a contract or formal offer letter with a detailed job description, and find out about the network budget.

He is using a recruiter this time around, but is skeptical about a lot of the tips that the job gurus post. "For example, they advise you to test-drive the job before you take it, or show up early for the interview and go into a Columbo routine, chatting up people in the lobby or parking lot. These suggestions aren't practical."

Whitley tells job seekers to rely on common sense and instincts. If you aren't getting the information you request, don't make excuses for the interviewers or fill in the gaps they are leaving. Recognize that good technical people are still at a premium, and look elsewhere.

Breidenbach is a freelance technology journalist and consultant. She can be reached at sbreidenbach@usa.net.



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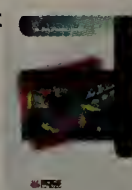


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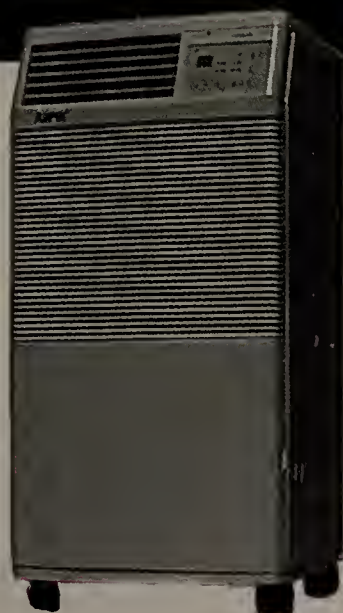
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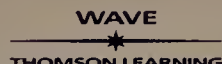
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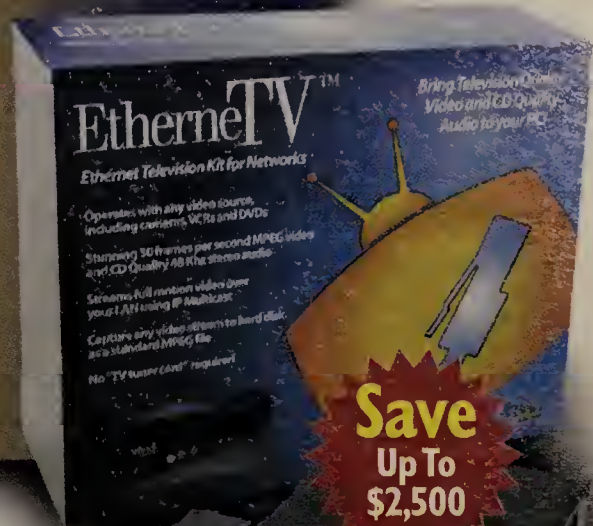


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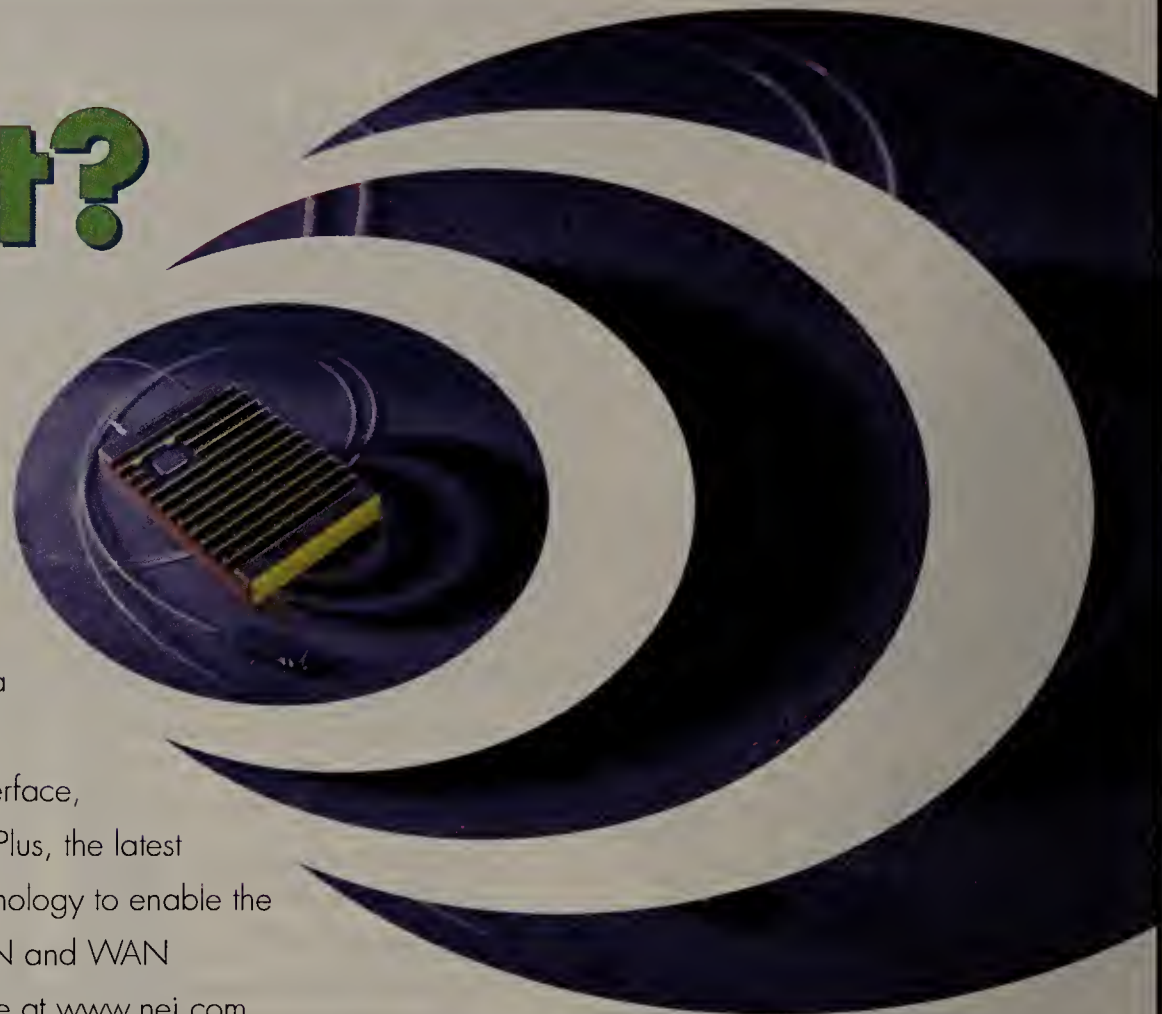
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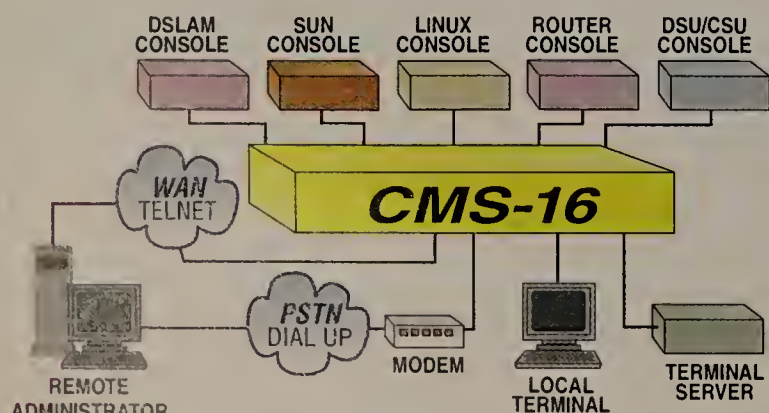
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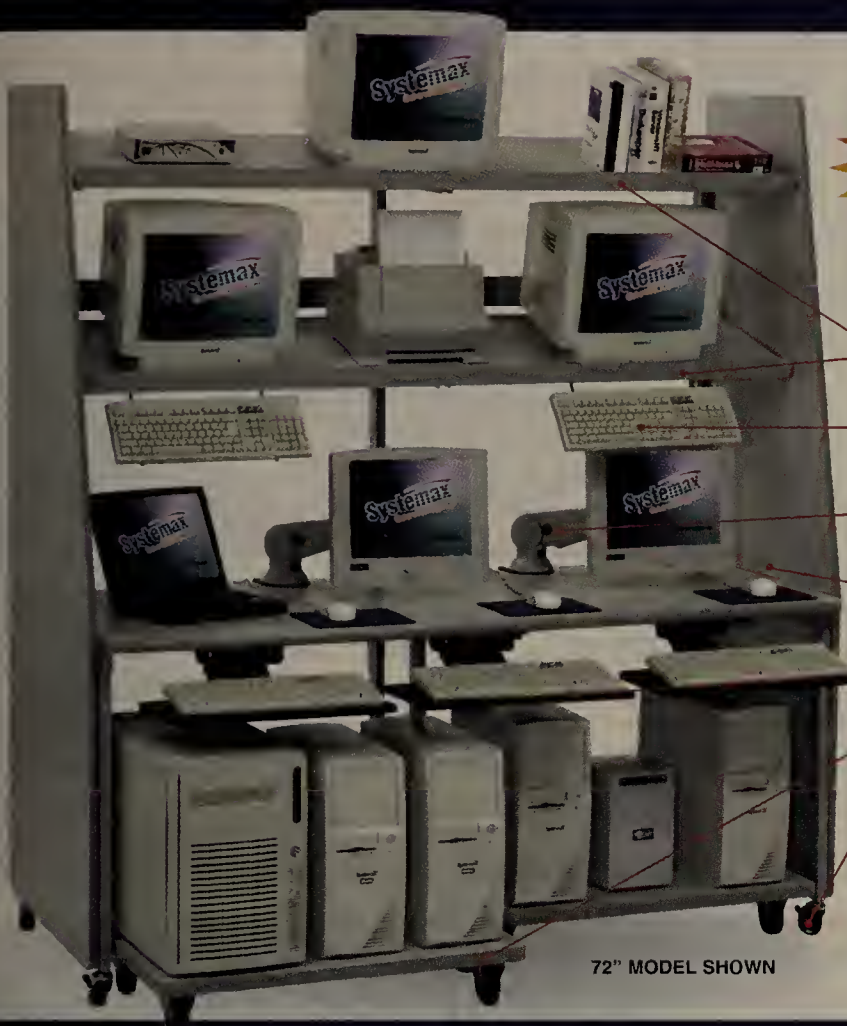
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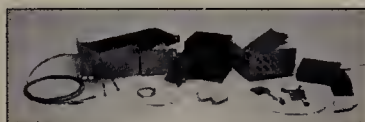


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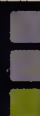


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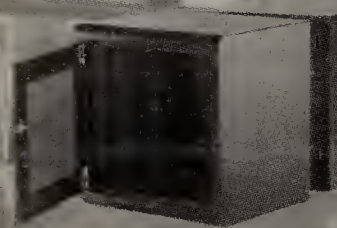
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Software Engineers. CLIENT/ SERVER & WEB BASED DEVELOPMENT (including connection less programming & Object Oriented Development) using RDMS, VB, Oracle, HTML, Javascript & Python. Plan design & develop PEOPLESOFT BASED ERP SYSTEM (including web enabled backend) & convert legacy system to latest ERP, using PeopleSoft ERP Tools, Oracle & JavaScript - 1 yr exp as PeopleSoft developer or consultant. Positions req. MS in comp sci, eng. or related tech field. \$55K & up. Resumes to: N. Vuppula, Software Services Resources, 7204 Santafe Pkwy. Atlanta, GA 30350

Programmer Analyst: A position is immediately available for motivated and resourceful applicants. Responsibilities are working with clients on system implementation and application software. Computer languages and skills such as Power Builder 7.0, MS SQL Server 6.5, ORACLE 8.0, MS Access, C++, AS/400, UNIX and MS DOS required. Competitive compensation package. Send resume to: Koni Ameri Tech Services, Inc., 5950 Live Oak Parkway, Suite 250, Norcross, GA 30093.

NJ Software co seeks Sr.

Software Engineer to analyze,

dsgrn & dvlp s/ware applics using

Sybase, C++, C, PERL/CORBA

on UNIX/Sunsolaris; must hv

expertise in ER WIN case tools

& DB Library; Req MS or BS & 5

yrs exp in CS or related field or

equiv in educ & exp. Competitive

sal & benefit pkg. Reply by email:

andy@sysfoursolutions.com

Entry Level Computer Systems

Analysts. Responsible for

assisting in the design, develop-

ment, and implementation of

accounting systems supporting

theater operations nationwide;

for maintaining the Novel main-

frame and LAN Accounting

systems; and for defining opera-

tions' revenue, inventory, billing

and franchisee royalty payments.

Must have a Bachelor's Degree

or foreign and/or educational

equivalent in Computer Science.

If interested, send resume in

duplicate to:

Human Resources

Cinema Grill Systems, Inc.

P.O. Box 28467

Atlanta, Georgia 30358

Project Leader-Greenville,PA.

Background must include design

& development of software using

VC++, SOL Server, Power

Builder & Java. Attractive

compensation package. Send

resume to Gordhan L. Zalavadia,

Pinestar Technology, Inc. 400

Apgar Dr Ste I, Somerset, NJ

08873

08873

SOFTWARE ENGINEER

Analysis, design and development of computer software for Internet applications using Lotus Notes, Lotus Domino Designers, HTML and JavaScript. MS in Computer Sci, Computer Engg, Mathematics (or equiv). Send resume: **HR Dept., Infinix Corp., 666 Plainsboro Rd., Suite 1320, Plainsboro, NJ 08536.**

Telecom Co. seeks SW Devel. Eng. to design db schema for large scale complex data warehouse for telephony billing system using realtime transactions. Design & develop a business objects universe schema for system. Analyze system bottlenecks, improve system performance, report req. & troubleshooting. Candidates must have MSCS, CIS and Eng degree with 3 yrs exp. with Bus. Objects, data warehousing, OLAP or other processing environment. Will accept B.S. & 5 yrs exp. Salary \$71K plus std. corp. benefits. Fax resume to 770-453-6060.

Senior Software Engineer for

Alabama based company. Must

have a Bachelor's degree in

Computer Science, Engineering

and two years of experience in

Computer Software developing

and/or consulting. Respond to:

HR Dept. Electronic Healthcare

Systems, Inc., 100 Brookwood

Place, Suite 410 Birmingham,

AL 35209. (Ref: 73601M)

Sr. Programmer Analyst. Re-

search, design, test and analyze

computer software systems and

databases; utilize SOL, Crystal

Reports, Unix. Req. Master's in

Comp. Sci. or related. Prevailing/

competitive wage. Job in FL.

Send resume to HR, Technion

Communications Corp., 6931

NW 88th Ave., Tamarac, FL

33321.

Call your

ITcareers Sales

Representative

1-800-762-2977

IT careers.com

Database Administrator/ Programmer. Develop and support complex e-commerce and web design applications and systems. Responsibilities include software design and construction; testing, troubleshooting, and maintenance; installation, implementation, and development across multiple languages and platforms. Duties include offering product and system support as well as, application and tailoring formal methodology for support of e-commerce installations. Principal place of employment will be in Charlotte, North Carolina. Master of Science degree in Computer Science, engineering, or related field is required. 40 hours/ week, 8 am to 5 pm. Salary \$60,000 - \$75,000 per year. Please send resume to Daniel R. Gregg, Human Resources Administrator, Seurat Company, 6325 Digital Way, Suite 300, Indianapolis, Indiana 46278.

Technical Support Engineer, Escalation Support Team

Technical support engineer with 4+ years of experience in support or developer role working within a software development organization. A demonstrated success in problem solving, reproducing customer scenarios, understanding APIs, networking experience, creating example code, monitoring resolution statuses and proactive customer notification is important. Comfort in XML and C++ a strong plus.

Other Openings: Development Manager Integration, Framework Developer, Networking Engineer, OLE/Active X Architect, Server Development Engineer and User Interface Developer.

Forward Resume to: jobs@groove.net (reference TSE)

Needed Programmer/Analyst to program and develop systems using Oracle & Develop 2000, analyze data modeling, define programming languages & needs based upon client needs. Implement products and programs. Must have bachelors or equivalent in Computer Science/related fields & 1 year of exp. as information technology professional exp. to include Oracle. Salary: \$50,000 per yr. Send resume attn: Som Bhattacharya, System Edge USA LLC, 811 Seffert St., Philadelphia, PA 19128.

Technical Recruiter needed to

recruit and place engineering

and IT professionals to perform

complex consulting services for

clients. Apply to: A. Behr, Hi-Tec

Systems, 500 Scarborough Dr

#108, Egg Harbor Twp, NJ

08234.

Systems analysts, Bethesda, MD. Develop CGI, client/server software for biomedical applications, incl. sequence comparison & alignment algorithms, biological database development, contig assembly algorithms, protein & DNA/RNA sequence analysis methods & algorithms using C/C++, PERL, SOL, HTML & Oracle or Sybase databases, relational databases, shell script languages for OS Windows NT & UNIX. Req'd. B.S.C.S. or rel. field & 2 yrs rel. exp. M-F, 40hrs/wk. Send resume to I. Sytnikov, HR, REF. # 401, InforMax, Inc., 7600 Wisconsin Avenue, 11th Floor, Bethesda, MD 20814.

Senior Member of Technical Staff - Software Engineering (Two Openings): Working with a team of engineers, will analyze, define, design and develop firmware architecture for broadband high-speed network access system. Will devise application design proposals and schema and carry out implementation and integration. Will be responsible for generation of boot code for all network elements and be accountable for implementing SNMP agents to manage the elements and monitor the network. Will also be responsible for the fine tuning of Ethernet drivers to maximize system performance at gigabit speeds. Develops network working systems using VXWorks Real Time Operating System, running on PowerPC based hardware. Applies knowledge of Java, C++, J2EE, XML, Servlets, Server side programming using JSP and ASP, Web servers (Apache and IIS), Application servers like weblogic, Oracle RDBMS and MS SQL server platforms. Requires a Bachelor Degree in Computer Science, Electrical or Electronics Engineering plus 2 yrs experience in job offered or 2 yrs experience in Communications or Systems Software Design or Development. Candidate must also have demonstrated expertise developing and implementing network provision and performance monitoring software; and demonstrated expertise in object-oriented design and programming in C++, Java and EJB. 40+hrs/wk; 9:00 AM to 6:00PM (M-F); Salary \$85,000 to \$110,000/yr. Must have unrestricted authorization to work in the U.S. Submit two (2) copies of resume to: Case #20011638, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114. EOE.

Systems Engineer

Develop & author technical white

papers & diagrams to facilitate

sales & marketing efforts;

Engineering Matrix development

& maintenance. Serve as mentor

to level I & level II engineers;

Design & implement, & integrate

the solution into the customer

network configuration. Help

customers diagnose & fix

configuration & solve network

problems via phone & on-site

support. BS in Comp Sci, Comp

Engg or Mech Engg (or equiv) &

2 yrs exp. Send resume to:

HR Dept, Radware, Inc.

575 Corporate Drive, Ste 205

Mahwah, NJ 07430

Openings for: Programmer/

Analyst, Computer Support

Specialist, Systems Analyst,

Database Administrator or

Computer Engineer: Design,

develop & test computer

programs for busn applications

using Java, C++, VB, ASP, UNIX,

Oracle, SOL Server. Min: BS in

Comp Sci, Comp Engg, Elec

Engg or Operations Mgt (or

equiv) and 1 yr exp.

Openings for Database Design

Analyst, User Support Analyst

Supervisor, Database Adminis-

trator, or Computer Engineer:

Analysis, design, & development

of computer programs for busn

applications using Java, C++,

VC++, VB, ASP, UNIX, Oracle,

SOL server and Com/Dcom.

Min: MS in Comp Sci, Comp

Engg, Elec Engg, (or equiv); or

BS in Comp Sci, Comp Engg, or

Elec Engg (or equiv) & 5 yrs exp.

Resume: HR Dept, Acumen

Consulting, 622 Rt 10W, #22A,

Whippany, NJ 07981.

Director Information Services

(SEARCH REOPENED)

SUNY Institute of Technology, a technological leader in higher education, seeks to fill the position of Director of Information Services. The Institute, 56th on "Yahoo!" Internet Life" magazine's list of "100 Most Wired" universities, serves 2,600 transfer and graduate students and will admit freshmen to select programs starting in fall 2003. Centrally located in scenic upstate New York, this technologically sophisticated and beautifully landscaped 800 acre campus is adjacent to the City of Utica and the foothills of the Adirondack Mountains. The Director of Information Services leads the planning, budgeting, development, implementation, and maintenance of the Institute's information technology infrastructure.

The successful candidate will possess a collegial management style, with leadership and consensus building skills; five years of successful experience in positions of increasing responsibility in the management of information technology, preferably in an academic setting; and a master's degree in an appropriate discipline; a doctorate is preferred.

Review of applications will begin April 30, 2001, and continue until the position is filled. Please send letter of application, resume, and names, addresses, and phone numbers of three references to:

Dr. Rosemary Mullick
Search Committee Chair
SUNY Institute of Technology at Utica/Rome
Drawer # 146
P.O. Box 3050
Utica, NY 13504-3050
www.sunyit.edu
EEO/AA Employer



Technical Project Manager

Connecticut-based Internet marketing research supplier seeks to engage the services of a Technical Project Manager (Project Engineer) to play lead role in design, development and implementation of the company's Internet marketing research products.

Duties: Manage design and development life cycle of technical product solutions, including strategy, roadmap, product definition, development, schedule and delivery; specify and deliver complete Information Technology solutions, including software, reference designs, integration strategy and partnerships, applications and documentation; interact with end-users to analyze and assess requirements, and ensure that technology solutions meet users' requirements and expectations; direct cross-functional teams to develop, deliver and ensure (i) product's release plan, (ii) design, development and build schedule, (iii) quality assurance and beta testing, (iv) training and technical documentation; team with operations, business development and support functions to develop product release plan, set pricing, packaging; manage customer communications related to limitations, bug reports and issues resolution; monitor customer feedback and initiate modifications and upgrades for subsequent product releases.

Requirements: Bachelor's Degree in Computer Science or equivalent with emphasis on information systems management, plus 1 year experience managing full life-cycle projects in an information technology environment, **Sun Certified Programmer; Java 2 Platform.**

Annual Salary: \$80,000

Send two (2) copies of resume/letter of application to: BHA; Reference 88762/GOL-TPM; 220 East 42nd Street; NY, NY 10017. An Equal Opportunity Employer.

Web Developer

Connecticut-based Internet marketing research supplier seeks to engage the services of a Web Developer.

Duties: Play lead role in design, **development**, maintenance and improvement of Company's websites; construct and tailor websites to needs of target audience; interface with marketing team for creative and strategic direction on website capabilities and requirements; interface with cross-functional department teams to define and implement functions, standards and capabilities for each website; develop processes and methods to direct "web traffic" to appropriate company resources; perform constant updates and upgrades to maintain company websites after implementation; create backup plan to accommodate website needs when web developer is unavailable; prepare monthly reports on web traffic, usage, effectiveness; source and manage external contractors and relationships with service providers; maintain working knowledge with new trends / technologies and recommend new applications to support business growth.

Requirements: Bachelor's Degree in Computer Science or equivalent, plus 1 to 2 years of experience with website development and maintenance; **active server technologies, relational databases and n-tiered architecture; Sun Certified Programmer and Java Platform.**

Annual Salary: \$65,000-75,000.

Send two (2) copies of resume and letter of application to BHA; Reference 88764/GOL-WD; 220 East 42nd Street; NY, NY 10017. An Equal Opportunity Employer.

IT careers

NEED TO HIRE.
START WITH US.

**PROGRAMMER/ANALYST
DATABASE ANALYST**

Offshore Digital Services seeking candidates with commercial experience in the areas listed below -

- programmer/analysts and application programmers with 2-7 years commercial experience. Candidate should have a BS (or foreign equivalent) in Computer Science or a related field
- database analysts and developers with minimum 3 years commercial experience. Candidate should have an MS (or foreign equivalent) in Computer Science or a related field

Full time permanent positions are available in the San Francisco Bay area, and nationwide.

Operating System - Unix, MS Windows, NT/95, OS/2 RDBMS - Sybase, Oracle, MS SQL Server, Informix **Front-end tools** - Visual Basic, PowerBuilder, Developer 2000, Designer 2000 **Applications** - ERP, Inventory, Purchasing, Distribution **Internet Programming Tools** - Web Servers, ASP, Java Languages - C, C++, Perl

Offshore Digital Services provides competitive salaries, benefits, and a bonus program designed to encourage long-term employment and increased customer revenue. Interested? Send a detailed resume with post applied for, education background, project experience, and geographic preferences to:

The Personal Manager Offshore Digital Services, Inc.
14798 Wicks Boulevard San Leandro, CA 94577
Fax: 510-483-1819 Email: personnel@odsi.com



Senior Member, Technical Staff (S/w Engineer). Design & implement O-O-based products & solutions to support clients' business needs; assume responsibility for service accuracy & timeliness. Research, design, develop, & implement s/w sys for medical, industrial, & scientific apps in O-O analysis & design, Smalltalk & Visual programming, & general Object Tech, using complex program. techs, math. models, systems analysis, design methodologies, s/w dev tools, & programming logic. Frequent travel & extended hotel/corporate apartment stays away from home. Due to client locations throughout U.S., nationwide transfers possible. Req: MS, Comp Sci, CIS, Bus Admin (w/CIS concentration), or related (or, alternatively, BS in sim field & 5 yrs progressively responsible exp); & 5 yrs exp w/ OO dev (Java or Smalltalk), & info systems or s/w engg (a BS in Comp Sci may substitute for 1 yr of this req, & an MS for 2 yrs); 2 yrs exp. using Smalltalk Envoy, Object databases, & responsibility-driven design; & 1 yr exp. w/ at least 2 O-O methodologies. Exp. may be gained concurrently, 40 hrs/wk. \$75,000/yr. Please apply in person w/ resume in hand to any Kansas Job service Career Center for the following job order: KS2300161, or submit resume to KDHR, Division of Employment & Training, 401 SW Topeka Blvd., Topeka Blvd, Kansas 66603, attention: Jane W. Burbridge. Be sure to include the referenced job order w/ resume. Applicants must have proof of legal authority to work in the United States.

Sr. Software Engineer sought by software consulting company in Denver, CO, to work in Sugarland, TX & other unanticipated job sites in the U.S., to, at a senior level, engage in full life-cycle software development. The software applications incorporate client/server technology &/or are web-based, & interface with ORACLE & SQL/Server relational database management systems. Analyze requirements. Create designs & design documentation. Code, test, implement, & debug the software applications. Use JAVA, HTML, Pro*C, Stored PL/SQL, PowerBuilder, & the Siebel ERP front-end management tool in the design & development process. Project management as required. Requires Master's or equivalent in Computer Science or related field (including Computer Applications). Specifically, the position requires a Master's, or foreign equivalent, plus 3 yrs of progressively responsible full life-cycle software development experience in a client/server environment using ORACLE & SQL/Server, or a Bachelor's, or foreign equivalent, plus 5 yrs of progressively responsible full life-cycle software development experience in a client/server environment using ORACLE & SQL/Server. Working knowledge of HTML & Stored PL/SQL. \$66,100/yr; M-F; 8am-5pm.(5 openings)Respond by resume to James Shimada, Colorado Dept of Labor & Employment, Tower II, #400, 1515 Arapahoe St., Denver, CO 80202, & refer to Job Order No.JL1117849.

Multiple positions available in a software consulting & development company in Fremont, CA.

Programmer Analysts-to plan, develop, test & document computer programs using latest computer programming techniques & languages including: AS/400, OS/400, CL/400, Pathfinder (Hawkeye), UNIX, Shell Programming, Informatica Designer, Server, Briogquery, Redbrick, ORACLE 8.1 SOLT, RISOL, BPCS, ILERPA.

Sr. & Jr. Software Engineers-to search, design & develop in-house computer software systems using latest computer languages & tools such as; LotusNotes/Domino development, Visual Basic, Javascript, VBScript, XDIFF, Windows NT/95 environment.

Application Programmers-to design, conduct maintenance & coding on specific computer modules, develop screens using computer programming languages including: PowerBuilder 6.5, Oracle 8.0, Windows NT.

Computer Programmers-to convert data from project specifications to create or modify computer programs using Visual Basic, Java, JDK, JavaScript, JSP, EJB, JDBC/ODBC, Corba, C++, ORACLE, UNIX/Solaris, NT.

Must have MS/BS in Computer Science or related fields plus relevant exp. Send res & cov ltr to Aroon Dinesh Guidibande, CFO, Kiroloskar Computer Services, Ltd, 38950 Blacow Rd., Suite F, Fremont, CA 94536. (510)505-1855.

Job # 200338-Software Engineer -Develops software systems, applying computer science and mathematical analysis using: Java, Perl, C and VBScript. Analyzes software requirements and performs user training after development. Must have a bachelor's degree in one of several limited fields: engineering, mathematics, computer applications or physics. Must have at least one year of experience as a applications programmer with Java, Perl, C and VBScript. . 40 hrs/week, 9:00am-5:00 pm. \$55,000.00/yr. Send Resumes to MDCD/ESA, P.O. Box 11170, Detroit, MI 48211 - 1170, referencing the above job number. This is an employer paid ad

Capital Stream seeks Dev. Team Mgr. for Sea. office. DESC: Manage. proj. dev. team of s/w engineers in full life cycle s/w dsgn. & dev.; Determ. s/w & h/w arch.; Dsgn., dev. & enhance web based e-com. apps. to access info. stored on RDBMS util. SOL, ASP, VBScript, JScript, XML, & COM on WinNT o/s; Coord. w/prog. & prod. manag/mnt to establish & meet sched. & deadlines & to ensure prod. meets specs. & req'rmts. REOS: BS in C.S., Eng., Math or Phys. + 3 yrs. of proj. mngmnt exp. directing proj. dev. teams thru full life cycle s/w design & development & dsgn. & dev. RDBMS & related dist. apps. util. SQL, VBScript, JScript & COM on WinNT o/s. Prem. salaries offered + bns, benes., & options. Pls. reply to Human Resources, Job #CS-101, 501 North 34th Street, Seattle, WA 98103.

Senior Technical Consultant sought by company in Denver, CO specializing in business software solutions to work in Denver & other unanticipated job sites in the US. At a senior level, implement & integrate enterprise resource planning software that runs on AS/400 & client/server platforms. Design & develop interfaces to integrate company software applications with client's existing systems & applications. Design & develop enhancements & modifications for software applications. Troubleshoot & resolve any problems that arise during implementation process. Provide user training & support as required. Solve & troubleshoot any bugs or issues. Analyze business processes to make sure the software applications & modules are consistent with those business processes. Requires a Master's degree or equivalent- specifically, it requires a Master's degree in computer science, engineering, or a related field (including chemical engineering) plus 3 years of progressive experience in design & development of client/server ERP software applications (the 3 years of progressive experience can be gained either prior to or after the Master's was earned), or a Bachelor's degree in computer science, engineering, or a related field (including chemical engineering) plus 5 years of progressive experience in design & development of client/server ERP software applications. 8am-5pm, M-F; \$85,000/yr. (2 openings.) Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number JL1117880

Senior Technical Consultant sought by company specializing in business software solutions in Denver, CO to work in Atlanta, GA & other unanticipated job sites in the US. Implement & install client/server & web-based Enterprise Resource Planning (ERP) software applications at client sites. Integrate the ERP software applications with new or legacy software applications, with relational database management systems, & with network operating systems. Configure relational database management systems. Enhance & modify software applications to meet the specific needs of the client. Engage in performance tuning & business process re-engineering. Troubleshoot & resolve problems & issues that arise during the implementation process, & provide user training & support. Prepare technical documentation. Use C, C++, JAVA, & other tools in the development process. Engage in application development &/or project management as required. Requires B.S. or foreign equivalent in comp. sci. or related field; 3yrs exp. installing & implementing ERP software applications, including configuring relational database management systems; working knowledge of programming language C & multiple (two) network operating systems (Ex: Windows NT, UNIX, AS/400, etc.). 8am-5pm, M-F; \$83,000/yr. (2 opps.) Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number JL1117742.

COMPUTER CONSULTANT. 40 hours per week, \$63,000 per year. Analyze, design, develop and test software for various commercial clients. Reach solutions for user requirements, develop new systems with an object-oriented approach. Manage database and application servers. Requires Bachelor's degree in Engineering or Computer Science and two years experience in the job offered or two years software engineer or programmer analyst experience. Must relocate to client sites in Houston or Dallas for periods of approximately 6-9 months. Apply at the Texas Workforce Commission, Houston, Texas, or send resume to 1117 Trinity, Room 424T, Austin, Texas 78701, JO# TX1180172. AD paid by an equal opportunity employer.

Team Leader, Technical Services sought by global communications company in Reston, VA, to work in Colorado Springs, CO, to oversee design & development of software applications for telecommunication management system in a client/server environment. The software applications incorporate Oracle relational database management system & run on Windows & Unix operating systems. Engage in system analysis & assign development tasks to team members. Engage in software design & development, modification & enhancements as needed. Complete high-level design & documentation, & final integration of new applications into telecommunication management system. Perform system backup & administration as needed & monitor system security. Supervise group members, including software engineers & business analysts. Utilize programming languages & tools as needed, including C, C++, Java, Java Server Pages, EJB, Select UML & Visual Café. Requires Master's in Information Systems, Computer Science, or related field; 2 yrs experience designing & developing software applications in a client/server environment, using C, C++, Java & Select UML. \$85,000/yr; M-F; 8am-5pm. Respond by resume to James Shimada, CO Dept of Labor & Employment, Tower II, #400, 1515 Arapahoe St., Denver, CO 80202, & refer to Job Order No.JL1117784.

Consultant: Responsibilities are to analyze, design, develop and manage the intelligent Work Station (IWS) software for the Atlas system on Tandem using object oriented methods. Responsible for software change control and the design and development of various enhancements and emergency bug fixes. Advise and guide clients in the development of their requirements and determine the best solution based on knowledge of the Atlas system and Tandem and its capabilities. Requires, Master Degree in Engineering and at least 2 years direct experience or 2 years related experience as project leader. Related experience must have included design and development on GUI platforms such as Windows NT and OS/2 in C/C++ using object oriented techniques. Salary \$74,000.00 per year, 40 hrs/wk, 9am - 5pm M-F. Resume Required. Applicants must show proof of legal authority to work in the U.S. Send resumes to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 7 North, Chicago, Illinois 60605 Attention Shella Lindsey Reference #V-IL 24884-L. AN EMPLOYER PAID AD. NO CALLS- SEND 2 COPIES OF BOTH RESUMES & COVER LETTER.

Senior Software Engineer sought by satellite TV company in Littleton, CO to work in Englewood, CO & other unanticipated job sites in the US. At a senior level, design & develop software applications & modules for video-digital recording systems. Applications run on LINUX & Windows Operating Systems, & utilize proprietary operating systems as well. Code, test & debug software applications, & modify & enhance applications. Create designs & design documentation. Integrate modules into overall system. Utilize programming languages C & C++ in the design & development of the software applications. Requires Master's in comp. sci. or related field; working knowledge of C, C++ & developing software applications for Windows operating systems (working knowledge can be gained through employment experience or in an academic program). 8am-5pm, M-F; \$66,100/yr. (6 opps.) Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number JL1117745.

SYSTEMS ANALYST (Houston, Texas) - Analyze user requirements, procedures, and problems to automate processing or to improve business decision support. Design data input, output formats. Design Data Models. Design database replication and database applications using languages such as Oracle, Sybase and SqlServer. Write detailed description of user needs, program functions, and steps required to develop or modify computer program. Write various web based database applications programs using PowerBuilder, VisualBasic and ActiveX. Plan and prepare technical reports, memoranda, and instructional manuals as documentation of program development. Upgrade system and correct errors to maintain system after implementation. Req'd. BS in Comp. Sci., Comp. Eng., or Elect. Eng. plus 1 yr. exp. in job offered or rel. occup. Twenty percent of work spent traveling to client sites. 40 hrs. 8am-5pm. \$55,000/yr. Apply at the Texas Workforce Commission, Houston, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O.# TQX1180151. Ad Paid By An Equal Opportunity Employer.

Systems Analyst. Analyze and define requirements for business systems within the company. Identify and recommend solutions to business problems. Contribute to the development of strategic business systems' direction for the company. Perform consulting, analysis, design, process redesign, project management and software package evaluation as required. Acquire software packages and assist in developing applications to support the business needs of the company. Keep abreast of developments within the broad area of IT and apply within the company. Requires: Bachelor's degree in Business Administration, Computer Science or related field. Undergraduate coursework must include classes in Information Systems Analysis and Advanced Computer Information Systems. EOE. 40 hrs/wk. Salary: \$52,500/yr. Send resume (no calls) to: Christine Reuter, iGO Development, Inc., 9393 Gateway Dr., Reno, NV 89511.

Software Engineer (2 positions) - Research, design and develop computer software systems in conjunction with hardware product development applying principles and techniques of computer science, engineering and mathematical analysis. Requires a Bachelor Degree in Computer Science, Engineering or Mathematics and 2 yrs exp in job offered or 2 yrs exp as Programmer Analyst, Systems Analyst or Systems Engineer. Must have 1-yr exp in document imaging. 5 day, 40 hr/wk, \$66,100/yr. Please mail resumes to Colorado Department of Labor and Employment, Employment Programs, ATTN: Jim Shimada, Two Park Central, Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117 and refer to order number JL1117781.

MULTIMEDIA PROGRAMMER. 40 HS/ P .WEEK WAGE \$22.00/HR B.S. COMPUTER SCIENCE + 1 YEAR EXPERIENCE IN JOB OFFERED OR 1 YEAR EXP. AS WEB SITE DEVELOPER W/ VIDEO-INTERACTIVE PROGRAMMING IN PORTUGUESE LANGUAGE. FLUENT ENGLISH / PORTUGUESE (BRAZILIAN). MULTIMEDIA PROGRAMMING INSTRUCTIONAL MATERIALS FOR INTERNET DELIVERY USING UNIX/LINUX & WEB ACADEMICS FOR MARKETING PURPOSES IN BRAZIL. RESUMES TO: DEPARTAMENT OF WORKFORCE SERVICES ATTN.: PAT REDINGTON JOB ORDER # 3061210 140 EAST 300 SOUTH SALT LAKE CITY, UT 84111

Business Systems Analyst wanted by Cimnet in Downers Grove. Must have BA or equiv. in Engg. or Manuf. & 5 yrs exp. in production planning.

Respond to: HR Dept, 2651 Warrenville Road, Suite 560, Downers Grove, IL 60515.

Sr. Software Engineer wanted: responsible for design and develop new e-commerce application using the latest development tools from Microsoft and other vendors including Visual Basic, ASP, XML/XSL, COM, SOL Server, Java. Work with team members to troubleshoot issues as they arise, ensuring that all issues are resolved in a timely manner. Candidate should have 3+ yrs experience in software development & design. MS in Computer Science preferred. Fax resume to HR Dept. of Priority IT (713)461-4497.

Software Engineer for sales & service co. of precision measuring tools & instruments located in Chicago, IL to analyze user requirements, procedures & problems to automate processing & improve existing computer system using Progress 4GL Tools & GUI; 37.5 hrs/wk. Must have bach's deg in Computer Science, Electrical Engineering or Mathematics & 6 mos. in job. Contact HR Dept., Mitutoyo America Corp., 965 Corporate Blvd., Aurora, IL 60504.

Lotus Notes Program Analysts. Design, develop, Lotus Notes /Domino applications. Evaluate user request for various business management systems. Identify current operating procedures, clarify program objectives and convert project specifications. Tools, Lotus Notes, Domino, HTML, Java Script. Req. Bachelor's degree in Computer Science with 1 yr. exp. Send resume to R. Blackwell, EKI, 20 S. Clark, #620, Chicago, IL 60603

Senior Programmer Analyst wanted by Manuf. Co. in Elmhurst. Must have BA in Engg. or equiv. & 2 yrs exp. with AS/400 enviro.

Respond to: HR Dept., The Chamberlain Group, 845 Larch Avenue, Elmhurst, IL 60126.

COMPUTER PROGRAMMER sought by hardware software resellers in Houston, TX. B.S. in Comp. Sc. and 6 mths. exp. required. Respond by resume to Ms. Lo, Computize, Inc. 1008 Wirt Rd., Ste #140, Houston, TX 77055.

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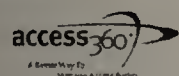
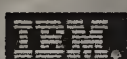
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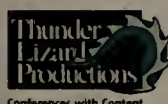
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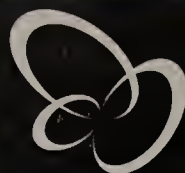
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IT Careers in Software Development

Software developers are among the most sought-after and competed for employees. They are the employees who brought about customized compensation offerings and whose needs frequently have created improvements in employer/employee relations for everyone.

Software development is the landing zone for creativity and innovation, where employees have the chance to develop entirely new things and reinvent the way business operates.

Acxiom Corporation Little Rock, AR

Rasesh Patel, business unit leader at Acxiom Corporation, says the software challenge for the future will be in focusing on the most critical needs customers have. "For someone in software development, that will mean needing to focus on the absolutely most critical skill sets," he says.

Patel knows because his company continues to develop software solutions that enable companies to drill ever more deeply into the data they have about their business and use it to create still more success.

The company has a core of software capabilities in its flagship products – AbiliTec, InfoBase and Solvitur⁴. InfoBase provides a comprehensive overview of market data, while Solvitur⁴ facilitates real-time customer knowledge, across multiple touchpoints (Internet, call center and retail outlets – concurrently). AbiliTec expanded in February with a new family of services based on AbiliTec software. These include a process to help companies comply with new privacy laws while continuing to build customer relationships.

"We have a good outlook in terms of projects," says Patel. "We are redefining how customer relationship management will be done in the future. Our customers will be able to use these capabilities to look for totally new business opportunities and markets."

Acxiom is hiring people with strong experience in building database solutions, parallel and distributed computing with a focus on performance, and development of customer solutions. "We also look for associated skills in communication, leadership, a results-orientation and someone who seeks continuous improvement and learning," says Patel.

"To fit Acxiom, you must be interested in your own career by having clear goals about where you want to be and taking charge of that future," Patel explains. "This is a company that revolves around profitability and customer and associate satisfaction. The associate satisfaction comes from meeting your needs in term of career goals, so you must be clear as to what they are. We measure satisfaction because we know it goes hand-in-hand with profitability and customer satisfaction, and we insist that it improves year over year."

Acxiom is a flat organization where people fill roles, not titles or jobs. "This immediately breaks down some

barriers because everyone here must be a leader," Patel says. "We work across boundaries to form teams to get work done – that's our bottomline."

ALLTEL Corporation Little Rock, AR

Faith Hill stars in ALLTEL's current advertising campaign, but this Fortune 500 company shines brightly on its own in the IT world. ALLTEL began more than 50 years ago as a local telephone company, adding IT for financial services companies, mortgage providers and the telco industry three decades ago. In the mid-1980s, the company transformed again, this time becoming a leader in enterprise networks and wireless communication.

Headquartered in Little Rock, the company also has locations in Atlanta, Cleveland, Charlotte (NC) and Jacksonville (FL), as well as other domestic and global sites. Karen Huber, director of employment in Little Rock, says the company's work in software is a never-ending cycle. "We develop continuously, enhancing what we have but also responding to new requirements and technologies." Primarily, ALLTEL's IT projects involve the world of finance, providing services such as home banking, and anything that a retail financial institution offers to customers. "Our IT products are not visible to the general public, but our web-based development drives the capability for our customers and their customers," says Huber.

The company has openings in distributed computing, network architecture and design, database and LAN design, client/server development and business analysis. ALLTEL hires several thousand people each year companywide (7,000 in year 2000), including new college graduates who go directly into training. "We look at a candidate's educational degree, experience and performance, but we also want people who can come in and work directly with our customers, who have strong communication skills and the ability to work as part of a team."

ALLTEL has shifted from primarily classroom-based training for employees to a mix of web-based, computer-based and classroom training. "We work with employees to create a career path and individual development plan," says Huber. "We want to know where they want to be in five years and then plan on how to get them there."

"We believe people come to ALLTEL because they can have a full career here. We have technical and industry



options for IT professionals such as our global operations, telecom operations and the wireless operation," she adds. "Add to this that we are a friendly place to work where we balance a high level of customer service with a high level of providing for employees."

CrossWorlds Software, Inc. Burlingame, CA

CrossWorlds delivers high-speed integration to customers ranging from The Dow Chemical Company to Whirlpool. The company's presence in the telecommunications arena increased by 92 percent in 2000, and CrossWorlds was named by *Computerworld* magazine as one of the "Top 100 Emerging Companies to Watch in 2001."

The rave reviews are based on the company's ability to decrease long-term IT maintenance costs, while enabling faster integration within the enterprise and across the Internet. Robin Rea, employment manager at CrossWorlds, says this is possible because of the company's patented architecture, a unified integration platform for e-business and a true end-to-end solution that is unmatched in its speed of implementation. "Our goal is to connect all the software a customer uses, to streamline their processes and to assure that the external face of information for customers and partners is real-time and consistent," Rea says.

The service rests on CrossWorlds' engineering department. "We develop and implement a full suite of business integration software that unites and extends business processes," says Rea.

"In addition to the focus on training and professional expertise and growth, CrossWorlds is a well known and well-respected company," she adds. "That's a great environment in terms of what you want to do. We're innovative and allow individuals to be creative, to do what you can to enhance and develop products."

IT careers

For more job opportunities with software development firms, turn to the pages of *ITcareers*.

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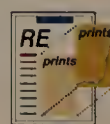


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Web hosting, continued from page 1

content delivery network (CDN). McAfee has about 250 servers in-house, but Cavit says he's kept that number flat, eliminating the need for collocation because of the Akamai service.

Moving traffic onto a network "has so many advantages in terms of ease, in terms of speed, in terms of diversity and security, that it really obsoletes the whole concept of using a traditional co-host," he says. "There's no reason to have to add thousands of servers and build out a bunch of bandwidth when you can just throw it at a service like Akamai and have it take off and do what it needs to do."

CDNs deliver content from geographically dispersed servers (Akamai has 8,000) that sit on the edge of various networks (473 in Akamai's case). Not all CDNs are as big as Akamai, however, and there is the issue of how to deliver content over disparate CDNs, a concept known as peering (www.nwfusion.com, DocFinder: 3748). Content Bridge, backed by Inktomi and others, and Content Alliance, backed by Cisco, are two industry groups that were

formed to tackle the problem.

But the benefits remain. Because CDN servers are typically located within ISP territories, the number of users is limited by the capacity of that ISP. The servers are shared, so when some sites are busy and others aren't, the busy sites get the extra capacity they need. In the traditional data center scenario, the number of users is virtually unlimited, and businesses often must keep extra servers and bandwidth on hand to accommodate sudden spikes in online traffic.

"So it's really nice if you're running something that may have traffic spikes or even if you have a steady flow of traffic, because you never have to buy another piece of iron again," Cavit says. "All you're buying is a service, and there's no iron to manage or anything else to worry about."

Some analysts say companies, such as Akamai, are slowly chipping away at the Web hosting business. "Every dollar that is served out of an Akamai cache is not being served from the data centers of Exodus or Global Center or Digex or Genuity," says Lydia Leong, a principal analyst at

Spreading things out

As content-delivery networks (CDN) become more advanced, it's tempting to move traffic out of data centers and away from Web hosting facilities. Here are some things to think about:

	Pros:	Cons:
Web hosters	<ul style="list-style-type: none"> • Vast network of data centers for original content. • Many offer CDN service, providing the best of both worlds. 	<ul style="list-style-type: none"> • Need for extra bandwidth and servers to handle traffic spikes. • More "hops" to get to content, slower experience for end user.
Content-delivery networks	<ul style="list-style-type: none"> • Distributed network puts content closer to end user. • No need for extra hardware. 	<ul style="list-style-type: none"> • Can't handle all content. • No managed services. • Inability to peer with other CDNs.

Gartner Dataquest.

CDNs used to only cache static content, but now products such as Akamai's EdgeSuite can deliver dynamic pieces, moving CDNs even further into the Web hosting realm. That means a broader range of content that once was confined to hosted servers — such as stock quotes or sports scores that change frequently — can be cached and delivered by a CDN.

Signe Furlong, product manager at Akamai, however, is careful to stress that Akamai looks at hosting companies as partners, not competitors. She says the Akamai technology is a value-added service that hosters can provide. Indeed, Akamai has partnered with hosters such as NaviSite, Digex and IBM Global Services. Exodus, while not an Akamai partner, has teamed with companies including Mirror Image to create its own CDNs.

"We're seeing great growth in that area," says Scott Emo, director of product marketing for Exodus. He says companies want the increased speed and performance that comes with CDNs.

While in some sense that may take away from the traditional hosting business, Emo says Exodus is benefiting from selling CDN service, and is freeing up space in its data centers to bring in more customers who likely will seek higher-revenue-generating managed services.

Tim Wilson, chief marketing officer at Digital Island, says there's no question that the line between hosting and CDNs is blurring.

"We saw this blur coming early on and we said, 'You can't be in the hosting busi-

ness without edge computing, and you can't be in edge computing without hosting,'" he says. So Digital Island merged with CDN Sandpiper Networks in 1999.

"And what gets done at the edge and what gets done at the core — frankly, our customers don't care," Wilson says. "They want performance and they want to manage costs."

That's what Gene Rekos, CTO of teen.com was looking for when he started reviewing CDNs such as Akamai, Digital Island and Mirror Image. Rekos says he chose Mirror Image because of its partnership with Exodus, which hosts his servers. He dealt with the Exodus project manager he came to trust and is billed for CDN service on his Exodus bill.

"It just made a lot of sense," Rekos says. "Exodus was a company we already felt good about."

For Dwight Gibbs, CTO of the Motley Fool, Exodus' CDN offering wasn't the answer. "It's excellent, but if you have customers who aren't on the Exodus network, it's not as good a solution," he says.

The Motley Fool has been using Akamai's service for about two years, and Gibbs plans to use the EdgeSuite service to move 90% of the site's traffic to CDNs by year-end.

"The load of our entire infrastructure drops dramatically, and we have much fewer boxes to support," Gibbs says, but he adds that there will always be a need to have servers in data centers — it just won't be as great. ■

Groove, continued from page 8

Raytheon is launching three Groove pilot projects this month. The company, which has 50,000 Notes seats, is exploring use beyond ad hoc meetings, according to Saul Fisher, director of strategic initiatives.

"We are looking at trying to figure out how to do some collaborative engineering," Fisher says. The pilots also will be used to validate Groove's security, which encrypts stored files and uses 192-bit encryption when transmitting data.

Fisher says the additional IT features added since Groove was launched in beta late last year were key.

"Groove has answered enough questions for me to go forward with a pilot," he says.

Groove Network Services, which are accessed with a Web browser, include features such as a centrally managed user directory and usage policies based on users, groups and domains.

It also has Relay Services, a type of store-and-forward message queue so users can work offline.

The Device Presence service tracks who is online and delivers software updates. The Component Hosting service stores software for downloading.

While Groove attempts to get traction, other peer-to-peer efforts are failing.

The most notable of those is InfraSearch, an attempt to create a peer-to-peer search engine that was backed by such big names as Marc Andreessen. It was recently bought by Sun and folded into a research project.

"Tell me what I can do with the technology is the bottom line," says Chad Rider, an analyst with Patricia Seybold Group. "There are some places where [peer-to-peer] is useful, but there is not a business around pure [peer-to-peer]."

Rider says Groove is getting attention because "there is a well-known need for collaboration in the enterprise and there are different features that match different needs."

Groove is priced at \$49 per seat, with the Groove Network Services an additional \$8 per user, per month.

Groove runs on Windows 95, 98, ME, NT 4.0 and 2000. ■

FIRMS TO TAKE A FINANCIAL FALL

While some customers may like the idea of using content delivery networks as their strategic data delivery system, the support isn't exactly filling the coffers of two of the technology's rivals. Last week Inktomi said it expects to report second-quarter revenue of \$36 million to \$38 million, and a loss of about 25 cents per share — compared to analyst estimates of \$65 million in revenue and a 4-cent loss. Actual results will be reported April 19. The firm also says it will reduce its workforce by 250 people, or about 20%.

Akamai then announced similar money troubles, saying its first-quarter revenue is expected to come in between \$39 million and \$41 million, rather than the projected \$45 million. The company also plans to lay off about 200 workers, or 14% of its workforce. It will report results April 18.

Both companies build technology that speeds the delivery of Web pages by storing it in caches closer to customers. Akamai offers a subscription-based service aimed at content providers, while Inktomi sells primarily to carriers, telephone companies and service providers.

The companies blamed their monetary shortfalls on the slowing economy and the continuing demise of its dot-com customers.

— Michael Cooney

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Rhythms could put up 'For sale' sign

BY MICHAEL MARTIN

Just one week after NorthPoint Communications shut down its national DSL network, rival Rhythms NetConnections last week revealed it is bringing in an investment banker to review its strategic options. Rhythms also announced it would likely have its stock delisted by Nasdaq and that CEO Catherine Hapka was resigning.

Rhythms' woes certainly won't be welcome news for the company's customers, coming after more than 100,000 NorthPoint users were stranded without DSL service. It's also bad news for many of those NorthPoint customers whose ISPs are moving them over to Rhythms' service.

Although Rhythms says it will look at several options, including strategic partnerships and

raising more equity, Adam Guglielmo, an analyst with TeleChoice, says the announcement "amounts to putting a 'For sale' sign on the front lawn."

The three national DSL wholesalers — NorthPoint, Rhythms and Covad — have been unable to raise significant amounts of capital since early last year. That fact, added to the low margins on selling DSL connectivity and the high cost of building and maintaining a national network, means the providers are desperate for money.

NorthPoint ran out of money soon after Verizon withdrew from a partnership agreement with the company last fall. Rhythms and Covad say they have enough cash to

Marching to a different beat

With CEO Catherine Hapka on the way out and President and COO Steve Stringer stepping into her role, Rhythms is considering options such as:



- The sale of the company.
- A joint venture or partnership.
- Debt or equity financing.
- A reorganization.

continue operating into 2002. All three had announced layoffs and scaled back network buildout plans in an attempt to conserve cash.

For now at least, Rhythms plans to continue operating as usual. The company is not divulging any more details

about its plans, as it is in a quiet period leading up to its first-quarter financial results.

Covad Chairman Chuck McMinn says the problems DSL wholesalers and ISPs have faced recently aren't due to any technology issues, but to the change in the financial markets. DSL demand is still soaring, he says, noting that Covad added approximately 44,000 DSL subscribers from January through March.

"When the financial markets decided to focus more on profitability than growth, some companies got caught with not enough money when the music stopped," he says.

McMinn is confident Covad has enough cash to operate into 2002 and turn a profit with a small hand from private

capital sources.

"We had a lot of money in the bank, and that's given us enough time to change our business in response to the market," he says.

One step Covad took to cut costs actually included slowing its addition of new subscribers so it could focus more on selling higher-margin business-class DSL services to existing customers.

Guglielmo says Covad's long-term prospects are probably better than Rhythms'. Covad's advantages include a retail arm, a customer base of more than 300,000, which is more than three times the number of Rhythms subscribers, and a partnership with SBC Communications.

"People are giving them a chance right now," he says. "They've certainly got fewer flies on them than the others." ■

B2B,
continued from page 1

posting first-quarter profits that were less than half of what analysts had expected.

• Commerce One warned investors to expect greater losses on lower revenue than previously anticipated.

Wall Street's reaction was swift and predictable: Not only

This gloom was palpable last week at Gartner's annual Internet & E-Business Conference in New York. Attendees appeared more interested in gathering around televisions to follow Wall Street's woes than hearing about upcoming business-to-business trends such as collaborative commerce.

The exhibition floor, packed with attendees in years past,

panies are tightening travel and IT spending budgets.

"[Customers] are waiting for the bubble to burst so when these companies fail, [the market] will be all cleared out and they'll have a better vision of which companies are there for the long term," says Marie Sheel, who was attending the show to learn about business-to-business technology. Customers "are thinking why should they spend \$600,000 on technology when they're not sure it will be useful or completed because the company may not survive. They're kludging together what systems they have."

Nike's much-publicized problems with i2 are also contributing to the re-evaluations, says Joshua Greenbaum, principal of Enterprise Applications Consulting.

Nike blamed poor third-quarter earnings on i2's supply-chain software, claiming installation snags led to excess inventory and order delays, which led to poor sales.

"The Nike disaster was a warning shot across the bows of IT," Greenbaum says. "How can a company spend \$400 million on a system and lose \$2.5 billion in market capital in one day? It put CIOs and IT managers on alert."

The week that wasn't for B2B

Lower-than-expected earnings, layoffs mount in B2B market.

Monday, April 2

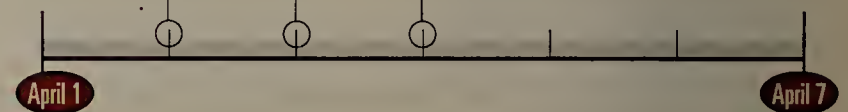
- Ariba, Agile Software cancel proposed merger.
- Ariba warns of 20-cent per share loss for Q2, will cut up to one-third of workforce.
- i2 will lay off up to 10% of its staff.
- BroadVision warns of 14- to 16-cent per share loss for Q1, cuts 15% of workforce.

Tuesday, April 3

Agile Software warns of 3- to 6-cent per share loss for Q4.

Wednesday, April 4

Commerce One warns of 11-cent per share loss for Q1.



Customers are also re-evaluating their e-commerce strategies, says Steve Butler, an analyst at eMarketer in New York.

"E-business isn't canceled, but it's definitely been put on hold," he says.

Customers are not basing their strategy on what they need to do to keep up with the competition, but on what they need for branding and long-term viability.

More B2B than thought

Sheel says customers are realizing there is more to business-to-business than originally thought. They are now concentrating on linking their internal applications, e-mail and

Web systems before they connect these systems to their external systems, she says. "If they get [the integration] problem straightened out, they've got their business-to-business strategy straightened out," she adds.

Now that the business-to-business hype is largely dashed, industry experts say the market is in for interesting times.

Suppliers will get back to the basics because "enterprises want vendors to be more straightforward, they don't want anymore baiting and switching, and they want to pick the pricing," Yankee's Williams says. ■

■ **"I've always conceived the enterprise applications market as durable and stable compared with the consumer market, but to have [fortunes] turn like this is very, very scary."**

Lisa Williams, analyst, The Yankee Group

did stock prices for these companies take a dive, but bigger-name software vendors such as SAP, Computer Associates and Oracle also were hammered.

"I've always conceived the enterprise applications market as durable and stable compared with the consumer market, but to have [fortunes] turn like this is very, very scary," says Lisa Williams, an analyst at The Yankee Group.

had only a fraction of foot traffic, according to exhibitors. There were reports of exhibitor employees walking from booth to booth inquiring about job opportunities.

Those in attendance say the buzz that surrounded business-to-business last year wasn't in the air at the conference this year. Indicators suggest that was because of concerns about the market players and that compa-

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Storage,
continued from page 1

with Enterprise Storage Group. "[Cisco is] going to spend a lot of money and effort on this emerging business."

Cisco's new router is the first fruit of its acquisition last year of NuSpeed Internet Systems for \$450 million, and Duplessie expects Cisco to buy another five to 10 storage companies during the next few years.

It should come as no surprise that Cisco would emphasize IP in its storage strategy. Although Fibre Channel-based SANs have emerged as useful systems for handling storage needs in data centers and for keeping storage traffic from bogging down corporate networks, IP storage is gaining momentum because it lets companies extend their Ethernet LANs and avoid some of the training and interoperability issues involved with SANs.

"This plays nicely into Cisco's quality-of-service story in that you can actually route data over the existing network infrastructure without having a separate Fibre Channel SAN and prioritize the data," says Teré Bracco, an analyst with Current Analysis. "It is also a market that plays on Cisco's strengths, because effective storage networking requires muscular routers."

Cisco, along with Agilent, IBM, Hewlett-Packard and others, last year started work on a specification for moving data over Gigabit Ethernet. Called the IP Storage specification (iSCSI), it provides for the development of routers, switches and controllers that let users implement fast but relatively inexpensive methods for transporting data to and from storage devices.

(Another specification exists called Fibre Channel over IP

BUILDING BETTER SANs

Companies looking to build bigger storage-area networks will get new options this week as Brocade and McData introduce multiprotocol, director-level switches.

Brocade's 64- to 128-port SilkWorm 12000 Core Fabric Switch is meant for building large, redundant and fault-tolerant SANs. The switch is designed to aggregate smaller Fibre Channel switches or can be used to directly connect to servers and storage devices.

Although one other vendor, InRange Technologies, preceded Brocade to market with a 128-port switch, analysts have pegged Brocade as the market leader.

"This [switch] is exactly the stuff users need in a single superswitch — multiprotocol routing, fault tolerance and an application layer that lets them run storage-oriented applications such as virtualization or replication in real time," says Steve Duplessie, an analyst at Enterprise Storage Group.

The SilkWorm 12000 will be available

with 1G and 2G bit/sec Fibre Channel support in the fourth quarter, the company says. Optional support for 10G bit/sec Fibre Channel, iSCSI, Fibre Channel over IP and InfiniBand will be announced later this year. Pricing information is not yet available.

Separately, McData is introducing a 64-port 1G bit/sec Fibre Channel switch that takes up a little more than 15 inches of rack space. The ED-6064 Fibre Channel Director has redundant fans, power supplies and switching paths, and uses a crossbar switch to aggregate traffic across ports. The switch starts at \$3,400 per port.



Brocade's backplane-based SilkWorm 12000 Core Fabric Switch allows switching capability over Fibre Channel, Gigabit Ethernet and InfiniBand.

Also this week:

- Adaptec is announcing an iSCSI controller, called the AEA-7110C, which fits into a server and lets it communicate via iSCSI switches or routers with Fibre Channel or SCSI devices scattered across a network. It will ship next year for less than \$1,000.

- Intel is making an open source driver for Linux available that vendors of Ethernet adapters, switches, routers and storage devices can use to develop iSCSI-conforming products. Sources say the company will also develop drivers

that work with Intel Ethernet adapters on Windows NT and 2000 networks. The Linux driver can be downloaded from <http://sourceforge>.

— Deni Connor

that lets two or more SANs be bridged over IP using dense wave division multiplexing [DWDM] or Gigabit Ethernet.)

Cisco's new SN 5420 Storage Router is one of the first products to support iSCSI. The two-port device sits between a LAN switch and SCSI or Fibre Channel storage devices, directing traffic between those storage devices and servers equipped with Gigabit Ethernet adapters supplied by Cisco and outfitted with iSCSI driver software (see graphic).

Cisco's \$27,000 router will compete with products from established vendors, such as IBM, and newcomers, such as Entrada Networks and Nishan

Systems. Entrada's Silverline-222 router has two Fibre Channel, two MAN/WAN and two Gigabit Ethernet ports, and will start at \$10,000 to \$15,000. Nishan's \$16,000 IPS 3000 switch has up to eight Fibre Channel ports and two Gigabit Ethernet ports and will communicate between Fibre Channel servers as well as storage devices. Both use the iSCSI protocol to transport SCSI storage data over IP.

Eric Goldfarb, CIO/CTO for Macmillan USA in Indianapolis, has a keen interest in IP storage, having beta-tested the Nishan IPS 2000 and 3000 switches as well as Cisco's SN 5420.

"We are primarily looking at [iSCSI] for backup to storage devices attached to the network and at pooling storage and consolidating servers," he says. "I am able to use my existing network resources, and our technicians are already trained in Gigabit Ethernet."

Sources say the SN 5420 router is a precursor to a blade Cisco will ship next year for the Catalyst 4000, its switch for enterprise wiring closets or branch offices.

"[Cisco's SN 5420] is what I call a transition technology," says one beta-version user who asked not to be identified.

Sources close to the company discount that claim. They say that combined with Catalyst

4000 or 6500 switches or Cisco's DWDM equipment, the SN 5420 has staying power.

One interesting aside in Cisco's storage network plan is the company's relationship with storage equipment maker Brocade.

Brocade and Cisco are co-developing a Fibre Channel over IP blade for Cisco's Catalyst 6000, a multilayer switch for companies and service providers. The blade will let SANs be bridged over IP-based WANs or metropolitan-area networks for disaster recovery and backup.

Cisco has stated that the Brocade relationship is a tactical,

not strategic, affair. And that may be a good thing because Cisco is incubating a start-up called Andiamo Networks at its headquarters in San Jose that sources say will put Cisco in direct competition with Brocade.

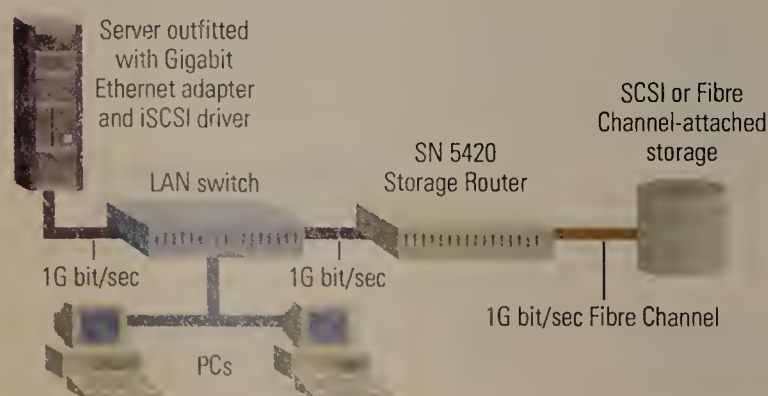
Andiamo is thought to be making a multiprotocol storage switch similar to the SilkWorm 12000, which Brocade is announcing this week. One source said the Andiamo device will also incorporate DWDM technology. The switch is slated to ship late next year. ■

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Where Cisco's storage router fits in

Cisco's SN 5420 Storage Router can shuttle data between Ethernet LANs and Fibre Channel nets, enabling companies to take advantage of their installed networks.



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C&W touts ASP feature

BY DENISE PAPPALARDO

HOUSTON — Cable & Wireless a-Services is hoping new browser support will provide customers with a simpler, yet more powerful way to access the application service provider's suite of hosted Microsoft applications.

This week the company will announce Webtop, a service that lets customers use any Web browser to access Microsoft Word, Excel, Exchange or Outlook applications hosted on servers that are fully managed by Cable & Wireless a-Services. The ASP is a partnership between Cable & Wireless, Microsoft and Compaq.

Until now, Cable & Wireless a-Services required users to run Citrix thin client software to access its applications. Citrix or other fat clients typically require installation, configuration and ongoing maintenance. Most users have Web browsers on their PCs, which require no specialized configuration when used with Webtop services.

"It's nice because there's no need for client configuration, and employees can access their desktop from anywhere around the world," says Brian Karlisch, a principal at the Alexandria, Va., firm Buchanan+Edwards that advises and implements enterprise resource planning systems. The company migrated its users from Cable & Wireless' Citrix environment to Webtop last month, he says.

Cable & Wireless a-Services offers customers secure access using an ID and password system and Secure Sockets Layer, and RSA Security's RC5 encryption used to protect data as it travels over the Internet. Users have

the choice of accessing their applications via dial-up, DSL or dedicated Internet connections. The applications are hosted in Cable & Wireless data centers in Reston, Va., London and Sydney, Australia.

The applications are available in three packages that each offer a virtual Windows 2000 operating system and 400M bytes of server storage. The packages consist of:

- Webtop Productivity, which includes Microsoft Office 2000.
- Webtop Productivity Plus, which includes Microsoft Exchange, Outlook and Office 2000 plus an additional 175M bytes of e-mail storage.
- Webtop Collaboration, which includes Office 2000 and Exchange host plus 45M bytes of e-mail storage.

The Webtop packages also include Internet access, Compaq iPAQ PCs for each user and 24-7 monitoring and management. Users that have PCs for employees are not required to buy new computers.

The service provider says it plans to introduce additional software options as well as wireless access. A specific time frame was not available.

Webtop pricing ranges from \$20 to \$200 per month per user depending on the number of applications and if Cable & Wireless a-Services supplies the PCs.

Cable & Wireless a-Services: www.csas.net.

ASPs

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Wireless,

continued from page 10

gets that can be written and deliver different subsets of content to different devices," Aicken says.

"We've been very careful to separate out the data access layer and the presentation layer for our gadgets, so essentially [what the wireless device is getting] is a different presentation layer," Aicken adds.

For example, a user accessing the portal with a Palm Pilot may see the calendar for the week, while a user accessing the portal with a small-screen wireless phone will see a day or two.

In addition, Soffer says, users will be able to set up their customized portal once and be able to access it from a PC or a wireless device — all with a secure, single sign on.

As for Hummingbird, the software vendor released a wireless document management product last month, enabling users to access their document

repositories from handheld devices. John Bellegarde, Hummingbird's director of product strategy, says the company plans to add wireless capabilities as it releases new versions of its enterprise information portal each quarter.

In the first phase of wireless, Bellegarde says, Hummingbird will offer a subscription-based service that will send content to wireless devices via Short Message Service (SMS). Content could include an hourly report of outstanding calls in a call center, stock prices, flight schedule changes and earnings figures.

Bellegarde says Hummingbird plans to use SMS instead of transferring content into wireless formats such as WML because SMS is more widely accessible in the U.S.

As technology advances, Hummingbird will shift its wireless capabilities into a two-way realm, where users can request specific information, based on summaries that are sent to a handheld device, Bellegarde says. ■

Supply,

continued from page 10

data from their back-end manufacturing planning systems to the SupplyWorks-hosted application.

"Large companies tend to focus on their top suppliers when it comes to collaboration, and they often don't have time for the second and third tier," said the Ingersoll-Rand's business unit leader, Bill Lindquist, adding that is where Ingersoll-Rand is prepared to fill the gap with the SupplyWorks-hosted application.

Helps to stay on top of many details

Large corporations that have gained experience in using supply-chain management software say it helps managers stay on top of the multitude of detail that surrounds shipping a variety of products to resellers or end users. Many companies deploy more than one vendor's products, depending on the application.

For instance, Motorola has deployed i2 Technologies software for planning and scheduling but uses ClearCross for tracking international trade logistics and

Siebel for sales-force automation.

Three years ago Motorola chose Oracle as the preferred enterprise resource planning (ERP) vendor. Motorola uses the Oracle 10.7 financial and human resources applications, but is still undecided on the Oracle 11i supply-chain suite.

"It's new, so we're taking our time to evaluate it," says John Liang, Motorola's general manager of supply-chain services.

Motorola has deployed Yantra's Web-based supply-chain software PureCommerce DCS for use in its Atlanta distribution center, and in China and Brazil, for tracking inventory, packing and shipping, and barcode compliance.

The Yantra application can receive business data from the Oracle ERP system and the i2 Technologies demand-planning system that Motorola uses. Motorola hasn't provided Web access to its customers for online tracking but may do so.

"Motorola is a very decentralized company, but we decided to standardize on ERP and supply-chain applications to present a single face to our supplier," Liang says. ■

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The right to write

fter my "Ethics of spam" column came out last week, I was amused to find that the first contributor to our online forum on Network World Fusion (www.nwfusion.com, DocFinder: 3637) was the person who started it all, Parker Byron.

In case you missed that particular tirade (and I hope you have a good reason, such as a police chase, attack by a large carnivore, or being compelled by your spouse to do something more physically active than reading the trade press), allow me to recap: Mr. Byron sent me spam. When I called him to ask if he knew what he was doing, he replied he did and because it wasn't illegal he'd just go on doing it.

Mr. Byron's forum response is interesting. First he notes that johnson-county.com — the site the spam was about — has nothing to do with Team Byron, the realty company that features on its Web page a roster of people all with the last name Byron and, as I noted in the original column, owns the 800 number that Mr.

well on your Web site.

And the issue of targeting is crucial in determining whether it's spam or not. Another participant in the forum, Frank Rios, thought Mr. Byron's message was targeted advertising because his name, e-mail address and message routing were real and he addressed valid recipients.

I disagree, as did forum participant Chris Stehlik. If your message doesn't start with, "Dear Mr. Gibbs" or "Dear Mark," and reference why you think I might be the correct person to receive your message, it is spam.

And if I see the same impersonal message being sent to multiple addresses in my domain, I know it is spam — it doesn't matter whether they are valid addresses or not.

And the issue of how the recipients are found is important. If you purchased a list that I double opted into, and I agreed that the list owner could sell my name to other companies, that's fine. Or if you find my address in a forum or as the author of some online content or you read one of my columns and you write to me along the lines of, "Mark, I read your article/comment/rant on X and I thought you might be interested in ..." that's also all right.

But Mr. Byron asserts that he found my name through "very specific search engine criteria," which I suspect is a roundabout way of saying "I used one of those \$50 spiders that trolls for e-mail addresses to build spam, er, targeted mailing lists."

Finally, Mr. Byron claims that as my e-mail address for my column is public, he has the right to write to me. Absolutely Mr. Byron, you have the right to write to me personally about whatever is on your mind. So far, you have only written to me impersonally. Write to me personally about something I have interest in (and I can assure you that a business directory for Johnson County is not one of those interests) and we can exchange thoughts. Otherwise, you have no right to write.

Write right to nwcolumn@gibbs.com.



MARK
GIBBS

Byron answered when I called to complain about the spam.

He says I "refused" to identify myself (not true) and he welcomes the opportunity to speak with people about his product (it's a business index of a county hundreds of miles from me — just how much speaking can you do after the first couple of minutes?).

But where Mr. Byron really gets going is in asserting that his e-mail wasn't spam but rather "target [sic] marketing intended for a specific audience." He further argues that messages reaching people that are not part of the target audience is "inconsequential."

Actually, Mr. Byron, there may seem to be no consequence to you (although I suspect you'd rather not have these columns pointing out that you're a blatant spammer), but there is a consequence to the recipient. Your credibility as an online marketer is zero, which doesn't reflect too



The latest on the
Internet industry

Unable to even fake expertise on the subject, Buzz hesitates to express opinions about the California power crisis. ... But here are three exceptions:

1) Never has doing business on the East Coast seemed like such a brilliant choice.

2) Although neither outage was related to supply, *Network World* endured two black-outs recently in Massachusetts, the second just days before our new emergency generator was to become operational. The thought dawned as I sat uselessly in the semi-darkness: Selling that type of security blanket must be one heck of a business right now ... on either coast.

3) Santa Clara Web hosting provider **Exodus Communications** does not consume anything approaching a quarter of the Silicon Valley's power supply, despite what you may have read. Here is just one example of this type of gross exaggeration from a press release whose issuer wanted to warn IT professionals about the rising cost of electricity before suggesting they purchase the vendor's product as an antidote:

"Businesses will likely shoulder the burden of this price hike, and with data centers like Exodus using up to 25% of the available power in Silicon Valley, they will be hit the hardest." The author of the release says she pulled that fact from an investment-house report.

Similar whoppers have popped up in newspaper stories and columns, so I fired off an e-mail to the Exodus public relations department seeking comment.

Company spokeswoman Melissa Neumann rang my phone not 90 seconds later, a response time that told me Exodus has had its fill of being California's electricity bogeyman. According to Neumann, her company's studies show that Exodus uses "significantly less than 1% of the total power used in the Bay Area on a daily basis." She emphasized "significantly."

I generally don't accept the time of day from a vendor without checking my watch, but this particular claim rings true.

The idea that a single company — no matter how large; no matter what its business — could consume one-quarter of all the juice in Silicon Valley strikes me as nothing short of, well, preposterous. The Valley's a huge place, almost every inch of which is covered with the type of equipment you'll find at Exodus.

Ending years of legal wrangling over one of the Web's most lucrative and salacious URLs, a judge last week ruled that original/current owner **Gary Kremen** is entitled to \$65 million in damages from **Stephen Cohen**. Courts had earlier determined that Cohen stole the URL by forging a letter ostensibly from Kremen to **Network Solutions** in 1995. Cohen's on the lam.

Curiously, Kremen told reporters he intends to clean up sex.com, replacing the explicit porn that reportedly earned Cohen more than \$40 million with tamer sex-related material of a more educational nature.

Which do you believe is less likely?

That Kremen will recover even \$1 of the judgement against Cohen or that he will abide by his pledge to keep sex.com free of the hard-core smut that made Cohen a wealthy fugitive?

Let's call it a toss-up.

There's a possibility, albeit a slim one, that I owe an apology to **Qwest Communications**. Or at least a belated benefit of the doubt.

Last week the carrier was taken to task here for airing a radio ad with the tag line: "If it's not Qwest DSL, you're SOL." My point was that public use of the acronym SOL — "[expletive deleted] out of luck" — isn't good for a corporate image.

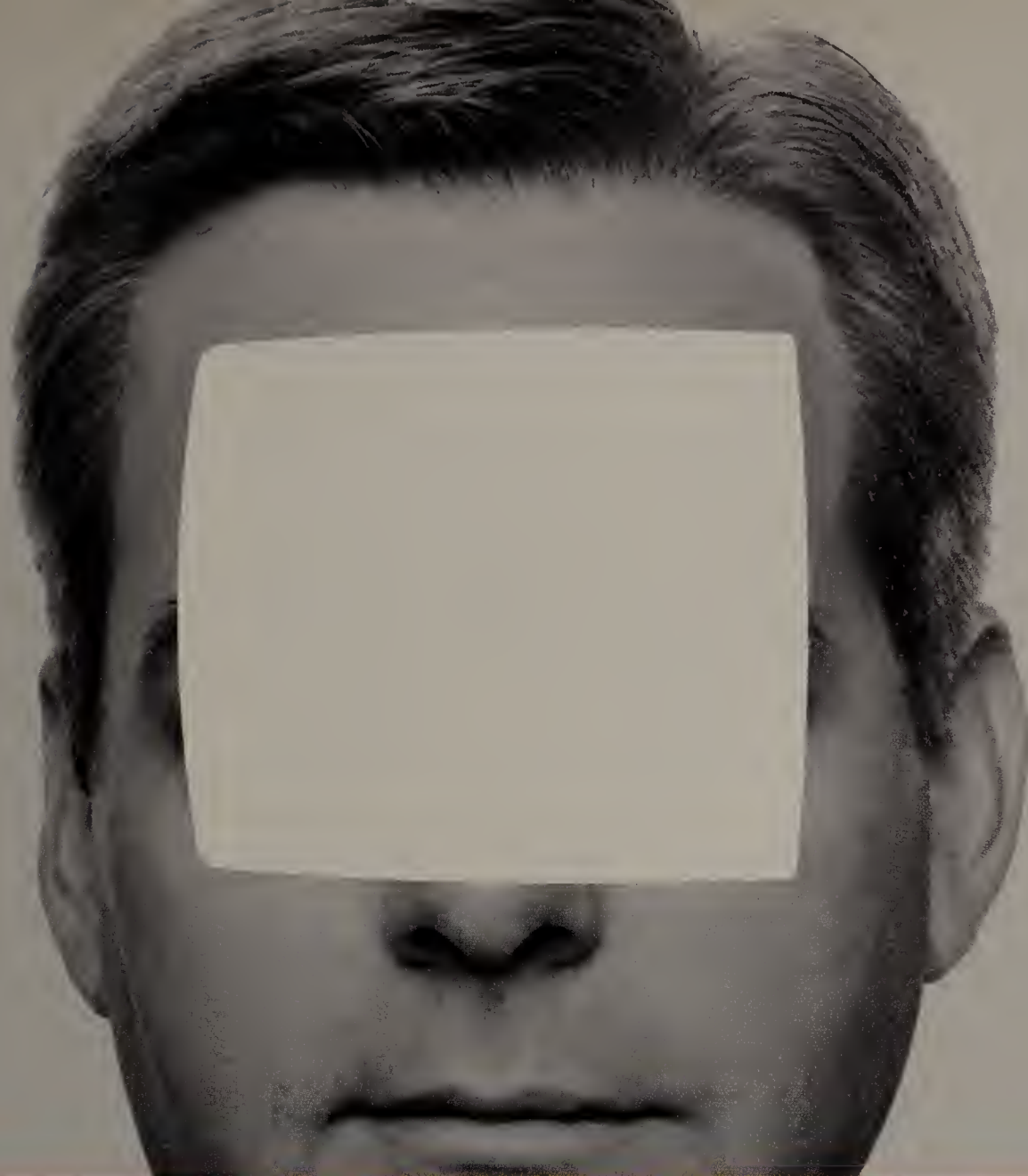
Well, several readers sent e-mail suggesting less vulgar interpretations of SOL: "So out of luck" and "Sorry, out of luck."

I haven't heard either one, but that may speak to a misspent youth.

Anyone want to defend the 25% figure regarding Exodus? The address is buzz@nww.com.



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